

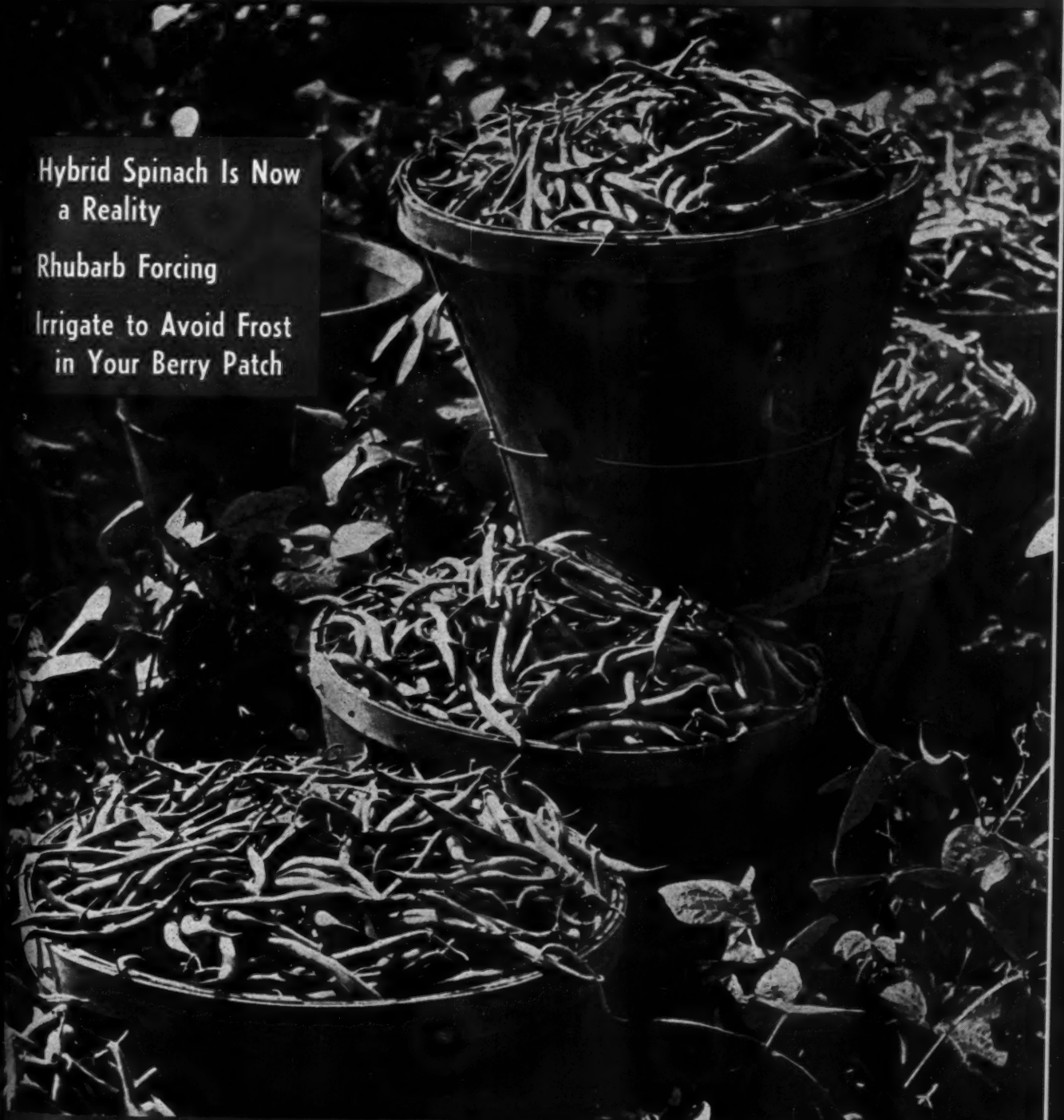
# American Vegetable Grower

APRIL • 1956

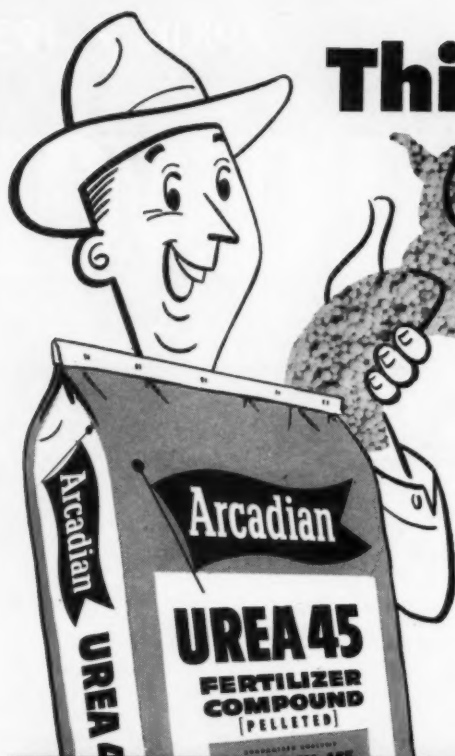
Hybrid Spinach Is Now  
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Rhubarb Forcing

Irrigate to Avoid Frost  
in Your Berry Patch



Successful Seed Germination



# This "45" is loaded

# with MORE Growth PER BAG

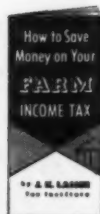
than any other nitrogen fertilizer

**ARCADIAN® UREA 45** contains the most nitrogen per pound of fertilizer you can buy in a bag. Every 80-pound bag contains 36 pounds of nitrogen—all high-quality urea nitrogen. Free-flowing, quick-acting and long-lasting, UREA 45 is a labor-saver and a profit-maker.



**It takes plenty of nitrogen** to produce a profitable, heavy yield of high-quality sweet corn and other truck crops. **ARCADIAN UREA 45** makes light work of supplying this nitrogen growing power—by plow-down, by broadcast in airplane or ground equipment, by side-dressing or by use in irrigation water. With 900 pounds of actual nitrogen per ton, UREA 45 saves time and labor any way you use it.

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Without obligation, get your free copy of the J. K. Lasser booklet: "How to Save Money on Your Farm Income Tax." Write **TAX BOOK** and your name and address on a postcard and mail it to us.



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APRIL, 1956

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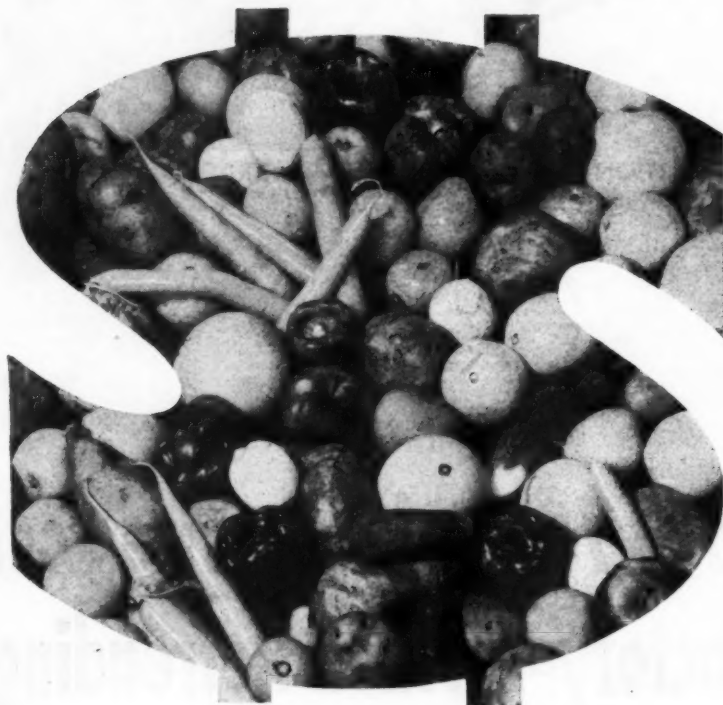
**APRIL, 1956**

3



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Fresh vegetables given a "beauty treatment" with Johnson's Wax have maximum eye-appeal. The better they look, the better they sell. Once waxed, many vegetables sell in greater volume and command top prices.

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Shoppers demonstrate their preference for waxed vegetables by moving them out of the stores quickly . . . even at premium prices. And that, of course, means better business all along the line . . . for jobbers, shippers, packers and producers.

Inexpensive and easy to apply, Johnson's Wax can boost the sales of many vegetables. For full information, contact your local Johnson distributor or write: S. C. Johnson & Son, Inc., Agricultural Waxes, Dept. AVG-46, Racine, Wisconsin.

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## AMERICAN VEGETABLE GROWER

REG. U. S. PAT. OFF.  
(Commercial Vegetable Grower)

Vol. 4 April, 1956 No. 4

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### AMERICAN VEGETABLE GROWER

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AMERICAN VEGETABLE GROWER

APRIL, 1956





For Correction Of

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A nutritional manganese compound to be fed to the plants through direct application in spray or dust form . . . To correct manganese deficiencies and to stimulate healthier plant growth.

## NU-Z

(Nutritional Zinc)

Nu-Z contains 53% metallic zinc . . . Can be applied directly to the plant in spray or dust form . . . Stimulates plant growth and corrects zinc deficiencies.

## NU-MANESE

(Manganous Oxide)

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This nutritional compound contains 48% copper and 4% zinc . . . Can be applied directly to the plants in spray or dust form. For correcting copper and zinc deficiencies and for stimulating healthier plant growth.

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and CUSTOM MIXED MINERAL MIXTURES

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Tennessee's Nu-Z, Nu-Iron, Nu-M and Tri-Basic Copper Sulfate are especially suited for use in preparing nutritional and fungicidal spray and dust mixtures and for use in mixed fertilizers.

For Information on These Nutritional Products, Write, Wire or Phone Us.

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Says Robert S. DeBruyn  
of Zeeland, Michigan:

"Only VISQUEEN 'C' film could give us all the plus features we felt we needed in our package. Brand identification, superior protection, attractive package and most important of all . . . the package had to be economical and easy to handle on our packaging lines. Moreover, bags made of VISQUEEN 'C' film add that *EXTRA* eye-appeal that helps clinch the impulse sale. Saylor of St. Louis makes our bags."

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### VISQUEEN 'C' film means better packaging at lower cost to you!

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4. **VISQUEEN** has body and stiffness—fabricates easily—keeps packaging lines operating at higher speeds.
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Converters of VISQUEEN film are packaging experts who can help you with your packaging problems. For names of those serving your area, clip coupon, attach to your letterhead and mail.

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Title \_\_\_\_\_  
Products \_\_\_\_\_

## LETTERS TO THE EDITOR

### Tomato Grower Challenges

Dear Editor:

We grow close to 200 acres of tomatoes for the green wrap trade. Would like to see the story on how Carl E. Ross of Walden, Ind., grew 26.3 tons of tomatoes per acre, to see if we can't top it. I've been on Ohio's Top Ten.

Also, would like to see the article on how Bill Van Eerden built an underground plastic covered sash house for under \$100. Try to get the article out soon as I would like to put the idea into operation this spring. I have a nice southeastern hill slope, just right for such a project. The Toledo Edison is getting us to try two other types of frames heated entirely by soil cables.

Delta, Ohio

S. Perry Johnson

*Tearsheets of the articles have been sent to our reader, but this exhausts our supply.*  
—Ed.

### Horseradish Offer

Dear Editor:

On your Variety Notes in the January issue, I sure want to comment and agree with the Chicago grower you mentioned in regard to hollow horseradish. Not only roots from Wisconsin are bad, I have received roots from two St. Louis houses this winter so far that are this way. I am a grower and I have some horseradish roots that I obtained from wild roots two years ago when planting roots were scarce and would be glad to send planting sample to some good grower to try, for a small fee to cover handling and postage. These roots grow to a nice size, and quality is tops.

Walkerton, Ind.

Joe F. Cripe

### New Subscriber

Dear Editor:

We are attaching our check for \$2.25 to cover a 4-year subscription and building plans for the plastic greenhouse.

We are growers of stake tomatoes and have a large onion acreage also. Am sure your magazine will be very helpful to us.

Bettendorf, Iowa

Ralph S. Watkins

### Honey Ball Melon

Dear Editor:

I have grown Honey Ball melons for some time and selected seed from those melons. However, due to the drought of 1955, the seed failed to fill out. This melon matures in about 85 days and averages little larger than Rocky Ford. Shape is round as a ball with very thick green meat and small seed cavity, having high sugar content. It is very prolific and, with uniform size, packs nicely in crates. The rind is hard and tough.

I would like to get in contact with a seed company from which I can purchase dependable, true-to-name Honey Ball melon seed.

Leavenworth, Kans.

William Moerke

*Try Ferry-Morse, Box 778, Detroit, Mich.—Ed.*

AMERICAN VEGETABLE GROWER

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THE TREND IS TO

**dieldrin:**

## for effective, long-lasting foliage pest control

More growers than ever before are finding long-lasting dieldrin one of the most effective insecticides for control of destructive foliage pests. Dieldrin controls such pests as lygus bugs, stink bugs, armyworms, cabbage loopers, potato flea beetles and many others.

Dieldrin is long lasting . . . even rain and hot weather cannot discourage dieldrin's staying power. Dieldrin can be applied as a spray or dust . . . any way you apply it, you'll find it easy to use.

This season use dieldrin—you'll find it pays off in higher yields of better quality crops. A good rule: Use *ALL* insecticides according to label directions—on the *crops* specified—in the *amount* specified—at the *time* specified. Your local insecticide dealer has dieldrin and complete information on its application.



### SHELL CHEMICAL CORPORATION

AGRICULTURAL CHEMICAL SALES DIVISION  
460 Park Avenue, New York 22, New York





# How to be sure your nitrogen returns top profits



## SPRAY NuGREEN®

### ... for quick results

Leaf feeding gives your crop a growth boost in a few hours. Put "NuGreen" fertilizer compound right in the tank with your pesticide sprays to simplify your fertilizer program. It's readily soluble in water, compatible with common control chemicals, non-corrosive to equipment.



## SPREAD NuGREEN®

### ... for steady growth

Use "NuGreen" for top dressing or side dressing or plow it down to aid decomposition of crop wastes. It resists leaching, is held in the soil until the crop needs it. And there's less weight to handle. Each 80-lb. bag provides 36 lbs. of actual nitrogen.



## IRRIGATE with NuGREEN®

### ... save time and labor

Use irrigation water to full advantage by adding "NuGreen." It's highly efficient in either sprinkler or syphon systems. Leaf run-off, or "NuGreen" flooded on soil is held in the root zone to assure a steady source of nitrogen for the growing crop.

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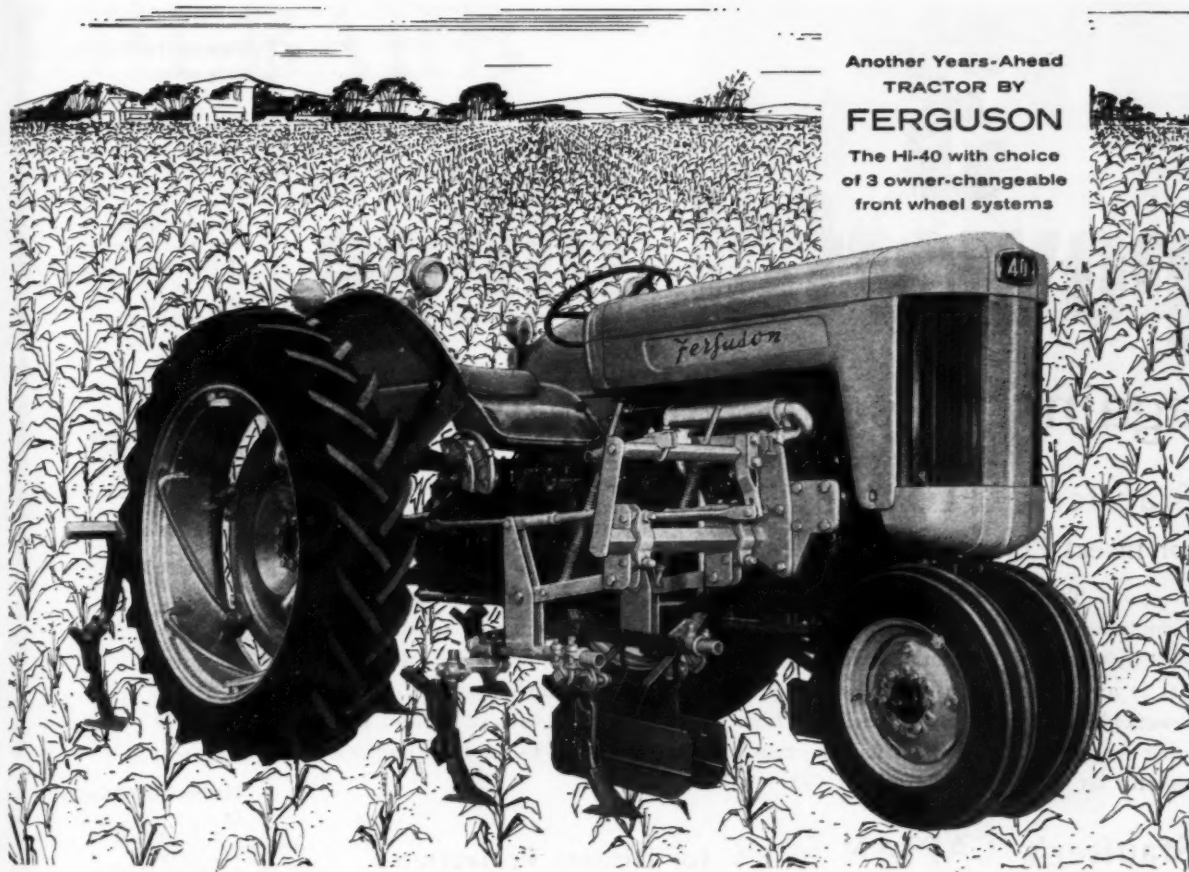
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Another Years-Ahead  
TRACTOR BY  
**FERGUSON**

The Hi-40 with choice  
of 3 owner-changeable  
front wheel systems

**BRAND NEW** by Ferguson...in 3 New High-Clearance Models!

# Ferguson Hi-40 WITH 4-WAY WORK CONTROL

If you prefer a high-clearance tractor and mid-mounted cultivators, be sure to see—and test drive—the new Ferguson Hi-40.

The Hi-40 has all the proved work-saving, money-saving features of its lower slung running mate, the famous Ferguson 35.

Right at your finger tips is Quadramatic Control that gives you close command of implements . . . lets you raise and lower them, select draft and maintain working depth, adjust the hydraulic system's speed of response and hold implements in any position you choose.

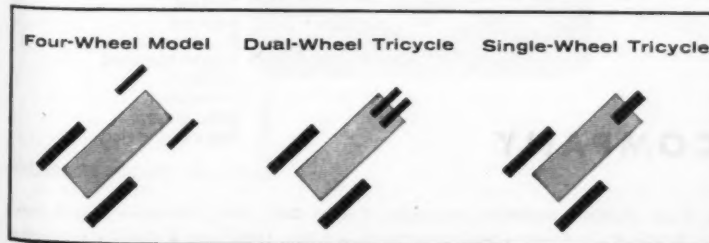
This and the other work control features give you mastery over every farm job; Variable-Drive PTO for both "Ground" and "Engine" speed drive; "2-Stage"

Clutching for one-pedal control of both transmission and PTO; and Dual-Range Transmission for peak efficiency in every speed range.

New increased power—12-volt electrical system—and power steering (optional) make the Ferguson Hi-40 a top performer in its field. Ferguson Dealers have had years of experience in sales and service of the Ferguson System. Contact your local dealer now to arrange for a Spring Hi-40 Demonstration. Ferguson, Racine, Wisconsin.

## Ferguson

CHOICE OF MODELS. The Ferguson Hi-40 is available in models shown below. Front ends are also convertible, by the owner himself.



### WIN FREE VACATION FOR 2

Exciting travel vacations to London and Paris . . . Hawaii . . . Caribbean Islands . . . Cuba . . . New York City. Ferguson Dealers have contest entry blanks. Nothing to buy or write. "Go places with Ferguson."

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## Stauffer's "FLOWABLE" PARATHION 400\* for Insect Protection

Everyone likes the powerful insecticidal properties of Parathion, but here's a formulation which has no dust hazard... which has little tendency to splash and is easily washed from skin and clothing if it does. Stauffer's "flowable" Parathion 400 is an emulsion in water... broadly compatible with fungicides and other insecticides... low in phytotoxicity... high in wettability... without solvent or other inert residues to affect flavors or injure plants. Ask us to send a Stauffer bulletin on "Flowable" Parathion 400.

## Stauffer's CAPTAN 50-W for Disease Protection

Damp-off and root rot on beans and peas, early and late blight on potatoes, tomato blights, and the numerous diseases that attack cucurbita and carrots are halted by Stauffer's CAPTAN 50-W. Our customers tell us they enjoy higher yields, bigger size, exceptional finish and color, unusual keeping qualities... when Stauffer Captan 50-W is used to control these characteristic diseases of vegetables. We have—and will gladly send—an informative bulletin on Stauffer's Captan 50-W.

## Stauffer's VAPAM 4-S for Your Seed Beds

Kill those weeds, germinating weed seeds, nematodes, soil fungi and insects and you'll have a big growth of healthy plants to set out. One application of VAPAM 4-S does the work... no special equipment is needed... no ground coverings... you can treat *acres* in a day! VAPAM has been used with remarkable success in several states and it is now available nationally. Send for a Stauffer VAPAM Vegetable seedbed bulletin.

\*formerly Stauffer's Paraflow.



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Forbes scale  
Fruit tree leaf roller  
Grasshoppers  
Green peach aphid  
Green stink bugs  
Leaf hopper  
Leaf miner  
Mealy bug  
Mealy plum louse  
Mexican bean beetle  
Oriental fruit moth  
Peach tree borer  
Pear blister mite  
Pear psylla  
Plum curculio  
Purple scale  
Red-banded leaf roller  
Red bug  
Red spiders  
Rosy apple aphid  
San Jose scale  
Scurfy scale  
Spider mites  
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Woolly apple aphid

### Stauffer CAPTAN Controls

On apples: Scab, sooty blotch, fly speck, bitter rot  
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On cherries: Leaf brown rot  
On cucurbits: Angular leaf spot, anthracnose, downy mildew  
On ornamentals: Damp-off  
On peaches: Brown rot and peach scab  
On potatoes: Early & late blight  
On roses: Black spot  
On strawberries: Leaf spot and grey mold fruit rot  
On tomatoes: Early & late blight, anthracnose, stemphylium

### Stauffer VAPAM Kills

Amaranthus sp.  
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Chickweed  
Dandelion  
Fusarium sp.  
Johnson grass  
Lambs' quarters  
Malva  
Nematodes  
Nut grass  
Phytophthora sp.  
Purslane  
Ragweed  
Rhizoctonia sp.  
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Verticillium  
Water grass  
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# RHUBARB FORCING

The countryman's "pieplant" is now being grown in straw forcing houses in midwinter

By KARL D. BAILEY

*District Horticultural Agent, Pontiac, Mich.*

RHUBARB has come to mean more to the average American as a baseball term than as a vegetable. In a Mt. Clemens, Mich., street corner survey last year 38 out of 50 people said they thought rhubarb was a silly baseball mistake or a battle between players. This was a little disconcerting since Macomb County, of which Mt. Clemens is the county seat, is the center of the forced rhubarb industry in the United States!

Rhubarb, known to countryfolks as "pieplant," has been around for nearly 4,000 years. It grows around the world, providing the climate is cool. I have found it growing on the 8,000-foot-high Savannah of Bogota, Colombia, South America, and in the mountains of the Carolinas. However, it is not adapted to the hot climate and needs a cool, dry period for its dormant rest. It grows to perfection in the northern United States and Canada. Commercial production is big business in Ontario, Quebec, and British Columbia, as well as Macomb County, Mich.

Legend has it that the forcing industry started in Michigan some 50 years ago when a Belgian farmer threw a clump of rhubarb on a manure pile in midwinter and it started growing.

The leaf stalks of both field-grown and "hot house" rhubarb are the only edible portions of the plant. Field-grown rhubarb has a leaf stalk which may be as big as a man's wrist and 30 to 36 inches long, with a leaf blade 3 feet in diameter. Forced rhubarb, however, has a very small leaf, scarcely larger than your hand, and a leaf stalk 20 to 24 inches long. Because it is grown in darkness, leaf blades do not develop, and color and quality are better.

Most Michigan growers "plant" root cuttings, each containing at least one "eye" or bud, about 20 inches apart in 36- to 42-inch rows



ABOVE RIGHT—Rhubarb grown in forcing houses produces large, vigorous, cherry-red leaf stalks such as these which command a good price on the market. Leaves develop only slightly in dark forcing houses.

ABOVE LEFT—Karl D. Bailey, district horticultural agent at Pontiac, Mich., examines forcing house of Hector Davulder, Utica. Roots are in place and house is ready to be covered.

LEFT—Emil Martin (left) and Ray De Mondt, of Utica, examine frozen crowns of Victoria rhubarb.

in the early spring. Applications of as much as a ton per acre of 3-12-12 or 4-16-16 commercial plant food are made each of the two years of field growth. Yield is greatly improved also by heavy applications of stable manure.

Hector Davulder, of Utica, Mich., applies one ton of 4-16-16 the first year and two tons of the same analysis the second year along with

stable manure. The crop is irrigated both years. Frequent cultivation is required for weed control, and throughout the summer months, flower stalks are cut out as they form.

In late fall of the second year the roots are plowed out with a 16- to 20-inch plow. Most of the long roots pull out of the soil rather than breaking off. The roots are then turned right side up so they will be easy to handle and won't freeze quickly. Considerable soil adheres to the crown, and growers feel this is an important factor.

Whether it is a dormant rest

(Continued on page 31)

# If You're Having Trouble GETTING YOUR SEEDS Follow this program .

By G. M. FOSLER  
University of Illinois

**SEEDSMEN** all too often "get it in the neck" when a grower has trouble getting his seeds to germinate. The grower thinks he was sold poor seed, and he naturally raises a kick!

The truth of the matter is, however, that if you buy from a reputable dealer, you usually receive viable seeds. Frequent germination tests guarantee this. But consistent success in making those seeds grow is a real trick which continues to baffle many experienced plant producers.

Admittedly, there is no *one* best way to start seed. Any method of seed flat preparation you adopt, however, should be economical, easy to use, adaptable to many different kinds of seeds, and comparatively fool-proof.

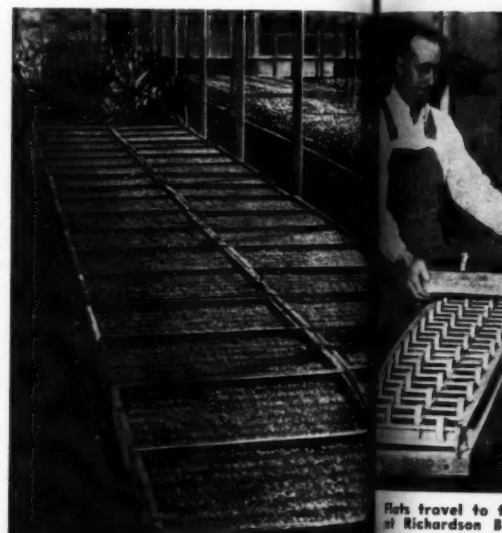
A good job of seed germination requires sanitation, proper choice of media, careful seeding and watering, appropriate temperatures, and control of other environmental conditions. The method to be described, sometimes called the Illinois Method, utilizes vermiculite, which has excellent seed germination qualities, and soil, which supplies nutrients for the young seedlings. Some of the other commonly used media are excellent. But the soil-vermiculite seed flat is hard to beat from the standpoint of cost, simplicity of preparation, ready availability of materials, small amount of care required, quality of seedlings produced, and re-usability.

**Preparing the Seed Flats**—Cover the cracks or drainage holes in the bottom of the flats with a small amount of moist sphagnum moss. Then fill with soil to  $\frac{3}{4}$ -inch from the top. Use a light mixture for perfect drainage and reduced damage to root systems when seedlings are removed. The following soil mixture is recommended: 2 parts sand, 1 part loam, and 1 part shredded peat (or leafmold).

Damping-off is a fungus disease

which often mows down tender seedlings; this is termed "post-emergent" damping-off. When the tender shoots are attacked before they push through to the surface, we are confronted with "pre-emergent" damping-off. This latter type is often confused with poor germination. Therefore, sterilization of the medium can't be recommended too highly. And don't forget to sterilize the flats, tools, and any other implements used, for they may carry disease organisms.

For all-round effectiveness, steam sterilizing is best. Not only does it kill damping-off organisms and other pathogens, but weed seeds and insects as well. Steam the filled flats for 30 minutes after the temperature of the soil has reached 180° F. For best results, have the soil moderately moist before sterilizing—not soggy wet or dusty dry. Steam tools and



Vermiculite-soil method of seed germination is used in this Evanston, Ill., greenhouse.



implements that will come into contact with the medium during the seeding operation.

If you don't have facilities for steaming, investigate chemical sterilization. Your greenhouse supply store can give the necessary directions for using such materials as chloropicrin and other commercial formulations. Formalin (40 per cent

Manual and mechanical seeders now on the market speed up seedling job. Front row (left to right): Vibra-Seeder, manufactured by Park Products, Lombard, Ill., and sold by George J. Ball, Inc., West Chicago, Ill., and Vaughan's Seed Co., 601 W. Jackson Blvd., Chicago 6, Ill., or 47 Barclay St., New York 7, N.Y.; Sheet metal hand seeder, also sold by Vaughan's Seed Co.; EEE-ZEE tubular seed sower, sold by Breck's of Boston, 250 Breck Bldg., Boston 10, Mass. At rear is the Little Wonder single-row seeder, with interchangeable drums for different-sized seed. It is manufactured by Harold J. Kern & Son, 806 Walnut St., Perrysburg, Ohio, and is also available in gangs for quick and easy full-flat seeding.

AMERICAN VEGETABLE GROWER

Flats travel to f  
at Richardson B

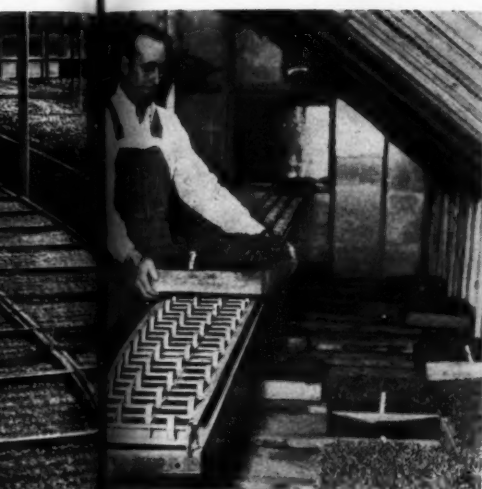


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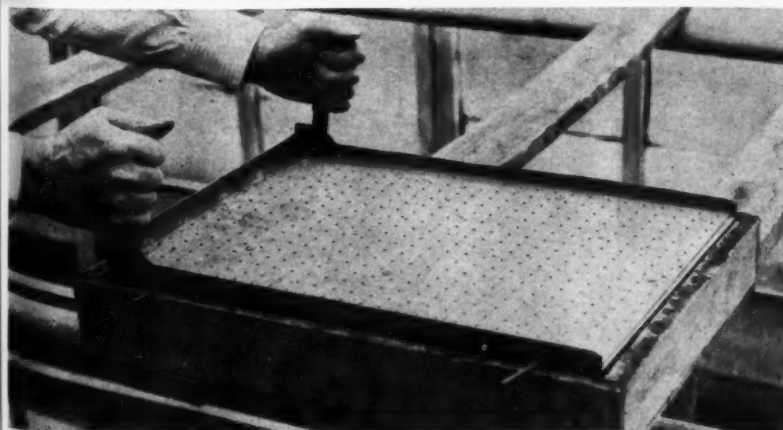
# SEEDS TO GROW

gra . . .



Flats travel to flattening table via conveyor belt at Richardson Bros. greenhouse, St. Elmo, Ill.

germination  
greenhouse.



Several hundred flats can be seeded in an hour with this device built by Richardson Bros. It consists of two pieces of sheet metal the same size as flats. Each sheet has a series of holes just the right size for the seed, but so spaced that holes in top and bottom do not coincide. Seed is placed on top in a uniform layer. When lever at left is pulled, the holes line up, and one seed falls through each hole.

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LE GROWER

formaldehyde) is also entirely satisfactory and inexpensive. Any drug-gist can supply it. Use  $2\frac{1}{2}$  to 3 T. (tablespoons) to each bushel of soil, or 1 T. to a 20x14x3-inch flat of soil. Dilute with 5 or 6 parts water, and mix thoroughly with the soil before putting it into flats. Loosely stack the treated flats under a tight cover, such as a piece of canvas, Sisalkraft paper, or plastic sheeting

for at least 24 hours so the fumes can penetrate thoroughly. Do this sterilizing in a place where the temperatures are fairly warm so the formaldehyde volatilizes. As fumes are poisonous, keep away from plants and animals. Be sure that all fumes have left the soil before seeding or planting in it.

**Applying Vermiculite**—After sterilizing, line up the flats on a potting table or greenhouse bench. Quickly level and gently firm the soil in each, then wet down thoroughly with a fine hose. When excess water has drained away, pour vermiculite (horticultural grade) on each flat to a depth of  $\frac{1}{2}$  inch or less. Vermiculite is sterile as it comes from the bag, so it doesn't need to be steamed. Level with a sterile board, but don't pack. Then

but follow the recommendations of your state experiment station on this matter. (See Cornell Bulletin No. 771, "Protectant Seed Treatments for Vegetable Processing Crops," available from Cornell University, Ithaca, N.Y., and Illinois Circular No. 522, "An Illinois Garden Guide, 1956 Ed." available from University of Illinois, Urbana.)

For Arasan, the amount of powder that will stay on the  $\frac{1}{4}$ -inch tip of a penknife blade is usually enough for a trade packet of average-sized seed. Balloon the envelope and shake for 30 seconds so each seed is lightly covered with the material.

**Seeding the Flats**—Sow seed thinly along the previously made depressions in the moistened vermiculite. Then cover with a thin



Sown flats are stacked in special germination chamber at Richardson Bros. range. Seeds germinate in darkness. Automatic controls maintain temperature at 70 degrees F. and humidity at 75 per cent. Just before seedlings emerge flats are taken to greenhouse and given normal care.

layer of dry vermiculite; depth of covering is not nearly as critical as with soil. For very fine seeds, apply only a scattering of particles among the seeds. (Shredded sphagnum has been recommended as a covering for seeds planted on vermiculite, but our experience has been that it tends to cake, and sometimes actually hinders germination.)

While row- or drill-seeding is advised, some may prefer the broadcast method for certain crops. Row seeding, however, permits better air circulation and makes for easier removal of seedlings. The manual and mechanical seeders now on the market work satisfactorily, with a little practice. For small quantities of seed, the old method of tapping seed out of the envelope is just as good.

Multiple-row seeders which plant an entire flat at one time, and devices which cover the rows with vermiculite or sand by merely pull-

(Continued on page 32)



# GOOD SEED

## Is No Accident!

The seedhouse that Ferry built celebrates its 100th anniversary with quality standards flying high

**V**EGETABLE growers who plant untested seed are flirting with disaster. Unwary growers have planted what they thought was carrot seed, only to harvest a beautiful crop of Queen Anne's lace; and wild mustard similarly masquerades as cabbage or turnip seed!

To protect the vegetable grower, the Federal Seed Act specifies methods of sampling and testing vegetable seeds and prescribes minimum standards of germination. It requires that the kind and variety of seed be named. All seeds sold in interstate commerce which fail to meet these standards must be labeled "Below Standard." Various states also have their own requirements and standards.

Before the passage of these acts, the vegetable grower was on his own in buying seed. About the only safeguard he had was to buy from a reputable seed house. Not by accident he frequently turned to the Ferry-

& Church and then as the D. M. Ferry & Co.), established a reputation for good seed. It long ago adopted a policy of growing and testing as much of its own seed as possible, to be sure of high quality, trueness-to-type, and viability.

As early as 1881 Ferry's catalog



Normal squash seedlings grown in flats of sterile soil are checked by company technician in greenhouse test for germination.



Ferry-Morse seed analyst checks sprouting squash seedlings. With controlled humidity and temperature, this Warm Chamber can accommodate 5,000 simultaneous germination tests.



At Oakview, Mich. trial grounds, Ferry-Morse cucumber expert notes new variety of slicing cucumber. Size, shape, color of skin and flesh, solidity, flavor, and number of marketable fruit per vine are noted.



Comparing notes on onions newly-dug in performance trials at Salinas, Calif., are two Ferry-Morse onion experts. Color, flavor, keeping quality, and absence of thick necks are important factors noted.

Morse Seed Co. for good, reliable seed.

This year Ferry-Morse celebrates its 100th anniversary, and its name is still synonymous with good seed. From its beginning in 1856, Ferry-Morse (first known as Gardner, Ferry

invited growers to visit the trial grounds in Detroit, which were "easily accessible . . . with horsecars passing every five minutes."

By 1907, when founder Dexter Ferry died, he had built the largest garden seed business in the world.

Ferry-Morse's reputation as an outstanding purveyor of high-quality seeds is based in part upon its consistent policy of rigorously testing all seed lots, in laboratory and field, under actual growing conditions.

(Continued on page 41)

TAILOR-MADE BY  
FERRY-MORSE BREEDERS



## LONG MARKETER CUCUMBER

**tailor-made for extra length**

### 1856-1956—Our First 100 Years



A century sees many significant developments. With this invaluable experience supplementing our intensive research, modern equipment and forward-looking staff, we shall serve you even better throughout our 2nd century.

Ferry-Morse new Long Marketer (right) has what it takes to be an outstanding shipping and market variety where downy mildew is not a factor. Some of its advantages:

- Uniformly slim fruits . . . up to one inch longer than Marketer (left) and more cylindrical.
- Unusually vigorous vines that produce heavy yields.
- The dark-green color that

growers find most appealing to market buyers.

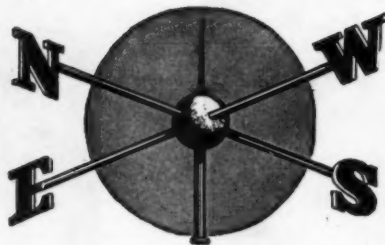
- Ability to hold up well in storage and shipping.

Growers who planted Long Marketer last year are re-ordering. Cover your requirements now.

### FERRY-MORSE SEED CO.

Detroit • Mountain View • Los Angeles  
Memphis • Harlingen • Tampa

APRIL, 1956



- North Carolina Potato Growers Form Marketing Association
- California Tomato Growers Find Hormone Sprays Boost Profits

#### Potato Growers Organize

**NORTH CAROLINA**—Potato growers in the early commercial area of eastern North Carolina are laying plans to beat competition, not just meet it. A year ago these growers formed the North Carolina Potato Association, Inc. They voted to assess themselves one cent per 100 pounds of potatoes for the purpose of promoting, advertising, and marketing their product. Money collected from the 1955 crop is now available to start their program.

They plan to use a superior quality brand packed in 50-pound Angus burlap sacks. They will package U.S. extra No. 1 two-inch washed potatoes, meeting the

#### WHAT KIND OF POTATO DO WE WANT?

Concern over the eating qualities of potatoes currently in commercial favor brought the following remarks from C. L. Fitch, secretary of the Iowa State Vegetable Growers' Association, and spokesman for 42 leading Iowa potato growers during the past 27 years:

"The Germans manage to get potatoes to eat that are equal to an Idaho 'baker,' and the Germans eat lots of potatoes. We manage to get potatoes with one-seventh less starch (and the meanness and flavor are in that seventh that we don't get) and we eat few potatoes.

"Potato breeders must put all their efforts into the breeding of a variety as early and as vigorous, as flavorful and mealy, and as good to store as the Cobbler, but which is smoother and will not scab.

"Farmers should ripen their potatoes. To do this, plant a variety that is early enough to ripen, plant big pieces very early, use no excess of late nitrogen or potash, apply no carbamate or DDT sprays after July 4, and stop the sudden killing of green vines.

"The federal-state inspection service should make table quality count for 50 per cent in its grade standards. Now the inspectors entirely ignore table quality."

If these things are done, Fitch predicts, the potato may regain its position as the nation's number one vegetable!

rules and regulations set by the Association. The brand name has not yet been decided upon.

The association is also considering prohibiting the sale of inferior quality other than for livestock feeding. By not offering anything but top-quality merchandise they feel they will create a greater demand for their potatoes and get higher prices than if the entire crop were sold.

It appears that many of the potatoes may be sold even before they are dug as chain store buyers insist on nothing but the very best quality, having good eye appeal.

Officers are John Broome, Aurora, president; Clay Ferebee, Camden, vice-president; Hugh B. Martin, Raleigh, secretary; John A. Winfield, Raleigh, treasurer.—*Hugh B. Martin, Sec'y, Raleigh.*

#### Hormone Sprays on Tomatoes

**CALIFORNIA**—Tomato growers in San Diego County increased their income by nearly \$1 million last year by using hormone sprays, says Farm Advisor Bernard J. Hall.

The hormone spray, 4-CPA, was applied to tomato blossoms in late April and May to increase the fruit set during cold weather, Hall reported. Of 1,500 acres of tomatoes grown in the county, some 1,200 were given the hormone treatment. Yields in the treated areas were up to more than 1,000 flats per acre. However, the quality of these tomatoes was slightly lower than of those untreated, and there was a higher percentage of culls.

Hormoned tomatoes are readily accepted by the trade, he pointed out. A distinct trend toward shipping the crop by truck to midwestern markets has been established. Pink tomatoes shipped by truck are ready to market on arrival without storage costs and loss of fruit.—*Neale Leslie.*

#### Nematode Control

**OREGON**—Three measures of control for the nematode which causes thousands of dollars' loss to western vegetable growers every year have been suggested by Harold J. Jensen, Oregon State College nematologist. These are:

**Crop Selection**—The host range of root-knot nematodes includes many kinds of

vegetables. If a host plant must be grown in a known infested area, avoid root crops such as carrots or parsnips, and instead plant broccoli, Brussels sprouts, cabbage, or cauliflower.

**Crop Rotation**—Avoid growing the same crop year after year on the same land. Alternate with corn, potatoes, and a green manure crop.

**Soil Fumigation**—Three years' experiments have proved that this measure brings satisfactory results if materials are applied properly. Soil fumigation has many pitfalls and must be thoroughly understood for best results. It will not entirely eliminate all nematode pests. A few are not killed after treatment, so it is necessary to fumigate the soil every year.

The soil should be in a good seedbed condition, relatively free of large clods and unrotted crop refuse. Failure to prepare the soil properly usually results in unsatisfactory control because of interference with the movement of the applicator during treatment and dispersion of the fumigant through the pore spaces of the soil. Soil moisture and temperature are usually most

(Continued on page 18)

## Know Your . . . VEGETABLE SEEDS

BY VICTOR R. BOSWELL  
U.S. Department of Agriculture

### ENDIVE

**E**NDIVE belongs to the same branch of the family *Compositae* as does lettuce and dandelion. The attractive, large, blue flowers of endive are much like those of chicory, to which it is closely related. The short "whiskers" at the tips of the endive fruits, or "seeds," are the remains of the pappus, a structure that is comparable to the feathery "wings" that tip the "seeds" of lettuce and dandelion in the mature seed head.

Endive is a minor vegetable, but it is steadily increasing in popularity and economic importance. From only 300 to 500 acres grown for market 25 years ago it has now increased to about 5,000 acres.

Only about 100 acres per year is required to grow the 40,000 to 70,000 pounds of seed needed for both commercial and home garden planting in this country. The greater part of the seed production goes to the amateur trade. The seed is produced chiefly in southern California and Arizona.

If endive is sown in the spring, especially in the warmer parts of the country it will shoot to seed in the summer, behaving as an annual plant, and produce relatively poor rosettes of leaves for food. Endive is normally sown in summer or fall for production either as a vegetable or as a seed crop. When sown late it behaves as a biennial, going through mild winters as a

luxurious rosette and producing large branched flower stalks in the spring.

Like the lettuce plant, endive matures



its seed over a considerable time so that some shattering and loss of seed are likely to occur before the best seed yield can be obtained. The entire seed stalks are cut and piled on canvas or are windrowed to cure for several days, after which they are threshed, usually by combine.



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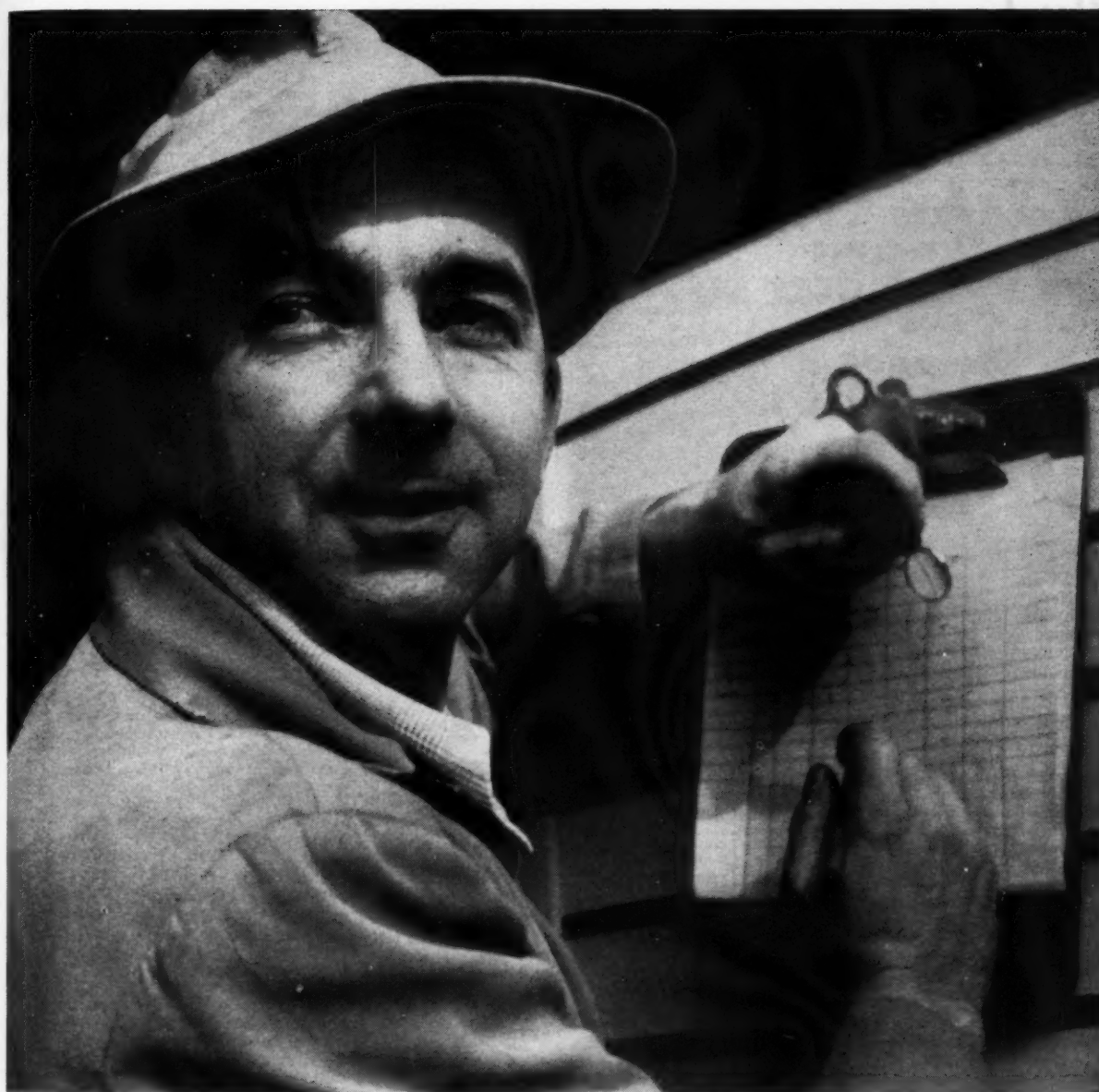
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## "I've tried all the miticides but I always come back to VAPOTONE"

It's quick. It's dependable. It kills! Insures cleaner crops, leaves NO poisonous residue.

"This VAPOTONE, made by the ORTHO people, gives me real control of red spider mites and aphids—even some of those mites that are resistant to other phosphate chemicals. Controls 'em without heavy poisonous residue on marketable

crops—even when used just three days from harvest. And, friends, *that's* a real contribution to the profit column."

Right! VAPOTONE is more effective because there is rapid contact action in the liquid spray and better stability in the dusts. VAPOTONE-XX Spray and VAPOTONE Dusts are the *original* TEPP-containing products developed by

ORTHO after intensive research. VAPOTONE products are no more expensive than other TEPP sprays and dusts.

ON ALL CHEMICALS READ DIRECTIONS AND CAUTIONS BEFORE USE.



California Spray-Chemical Corp. • Portland, Ore.; Whittier, San Jose, Fresno, Sacramento, Calif.; Caldwell, Idaho; Maryland Heights, Mo.; Memphis, Tenn.; Orlando, Fla.; Phoenix, Ariz.; Shreveport, La.; Maumee, Ohio; Haddonfield, N. J.; Medina, N. Y.; Goldsboro, N. C.

# Now!... A PORTABLE Stericooler

**THAT PUTS  
HYDROCOOLING  
IN THE GROWERS'  
BACKYARD  
at the peak  
of the harvest!**



Right side of Portable  
Unit with jacks in  
working position.

Here is a big capacity Stericooler hydrocooling unit designed and engineered to meet seasonal requirements of buyers and shippers of perishable fruits, vegetables, berries.

Follow the crops in season with your portable Stericooler hydrocooler—handle from 200 to 225 bushels of produce an hour—ship when the market is "hot" and take full advantage of the extra profits that Stericooler hydrocooled fruits and vegetables always bring.

The Stericooler hydrocooler is specially designed and engineered for mounting on a semi-trailer. It has two ample working platforms, four landing jacks for stability; plus rugged construction and engineered efficiency found only in FMC Stericooler hydrocooling units.

The portable Stericooler hydrocooler is available on a trailer ready to go. Or if you prefer we will supply the portable Stericooler unit ready for mounting on your trailer with complete mounting instructions.

Portable unit showing ice tank, pump, gas engine drives. (Also available with electrical motor drives.)



**GET YOUR SHARE OF STERICOLER  
HYDROCOOLING PROFITS—  
MAIL COUPON TODAY!**

Gentlemen: I'm interested in increasing my profits with your Portable Stericooler hydrocooler. Please send more information.

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**FLORIDA DIVISION**  
FOOD MACHINERY AND CHEMICAL CORPORATION  
P. O. BOX 1718 • LAKELAND, FLORIDA

## STATE NEWS

(Continued from page 16)

favorable for treatment during the months of May through September.

Soil is fumigated 10 to 14 days before planting to avoid plant injury. Two materials commonly used are EDB (ethylene dibromide) and D-D (dichloropropane dichloropropene).

In experiments at the college, Jepsen said, 5 to 7 gallons of EDB, plus kerosene as a diluent, or 30 to 50 gallons of D-D per acre were used. The cost per acre is approximately \$30 to \$50, depending on the amount used. Some of the newer materials such as Nemagon and Vapam are under investigation.—Harold and Lillie Larsen.

### Quack Grass Control

**WISCONSIN**—Results from using Dalapon (Dow Chemical Co.) in trial plots on a potato farm in Oneida County this past season look promising. Over 90 per cent quack grass control was achieved at a cost of about \$5 per acre for material. The following treatment was made:

1) The field was thoroughly quack dug with a field cultivator in the fall of 1954.

### BLACKBIRD CONTROL

A. Lee Towson, past president of the Vegetable Growers Association of America, recently requested the Senate Appropriations Committee to include the sum of \$100,000 in the budget for blackbird control by the Fish and Wildlife Service. Towson represented a delegation of 25 vegetable growers and farmers from New Jersey, Delaware, and Maryland, who appeared before the Senate Appropriations Committee, urgently requesting relief from the ravages of blackbirds and grackles on vegetables and farm crops in this tri-state area.

Since the amendment of the Migratory Bird Treaty Act in 1936 these species of birds have multiplied into uncontrollable numbers, causing thousands of dollars of crop damage annually. Attempts by farmers to control the birds have failed because currently used legal methods of control just drive the flocks from one farm to another.

(This is not necessary, but was done before plans were made to use Dalapon.)

2) Ammonium nitrate at 150 pounds per acre was applied in early spring to stimulate a good leaf growth on the surviving quack grass.

3) The area was treated with 4 pounds of actual Dalapon per acre when the quack grass was 4 to 8 inches tall.

4) It was plowed one week later, the soil prepared and planted to potatoes.

Dalapon has not been thoroughly tested for use on fields growing a wide variety of crops. At present it is safe for fields grow-

ing corn, potatoes, and some other field crops.—John Schoenemann, Ext. Veg. Crops Spec., Madison.

### Bargaining with Cannery

**ILLINOIS**—The Contracting Committee of the Cook County Truck Gardeners Association has extracted a promise from the Campbell Soup Co. that the company will not offer another contract without consulting with the growers' committee first. Also the company will consider ways to eliminate causes for complaint from growers such as excessive time to unload, etc.

### MARKETING CHIEF

New acting chief of the USDA Fruit and Vegetable Marketing and Utilization Branch of the Federal Extension Service, Washington, D.C., is Lloyd H. Davis. As extension specialist in fruit and vegetable marketing at Cornell University for five years, Davis worked closely with New York vegetable growers in marketing their produce. In his new position he will assist state extension specialists in developing programs to aid vegetable and fruit growers in their marketing problems. In this connection he will make frequent trips to the vegetable and fruit areas of the country.



The promise was made as a result of a growers' strike in March protesting the price and the fact that the company refused to allow the growers' committee to review the contract before it was submitted to growers for sign-up. Some 75 growers protested the contract this spring. More growers are interested, and Cook County growers feel that they will have considerably more bargaining power next spring.

### Potato Grower Honored

**PENNSYLVANIA**—Leon Epler, Northumberland County potato grower, was one of six farmers in the state honored recently by *Pennsylvania Farmer* magazine. Selected from a field of 115 of the state's 129,000 farmers, they were presented the title of Master Farmer.

Epler has served as president and is now a director of Pennsylvania Co-operative Potato Growers, Inc. He is vice-president of Pennsylvania Potato Industries, Inc., and is president of the Pennsylvania Farm

(Continued on page 20)



Members of the Contract Committee of the Cook County Truck Gardeners Association include (left to right) Ervin Alten, Edward Koehler, Edward Wagner, William Linnemann, Herbert Mueller, Christian Heinrich, Henry C. Koch Jr., Henry Koehler, Arthur Giesen, Henry Eichholz, Walter F. Sass, president of the association, Raymond Stell, and Elmer J. Stell, treasurer of the VGAA and assistant secretary of the Cook County group. Sass and Elmer Stell are not members of the committee.

AMERICAN VEGETABLE GROWER

# Cut your spraying costs!

## the **John BEAN 15-RC AIRCROP** attachment

sprays at rate of  
**24 ACRES**  
per hour



With the John Bean 15-RC Aircrop installed on your high pressure sprayer, you'll spray 60' swaths and do a thorough job at the rate of 24 acres an hour at a 4 mph tractor speed. Just estimate your savings in time and labor over boom-type spraying! Many growers can save the cost of the Aircrop in a single season.

Straight-through delivery of a large air volume at medium velocity is one secret of the Aircrop's phenomenal success. The 15-RC's 29" axial flow fan delivers 31,000 cubic feet per minute, but the

air's velocity is only 70 miles per hour. This, plus the exclusive John Bean design of the Aircrop's discharge head provides uniform spray pattern over entire width of swath.

And see how these other Aircrop features will speed your spraying job: (1) Entire unit rotates in a 200° arc to take advantage of wind direction (2) Rotation and internal deflectors controlled from the tractor seat (3) Water hauling reduced ½ to ¾ by use of concentrates.

There's a John Bean high-pressure, boom type sprayer for every purpose.



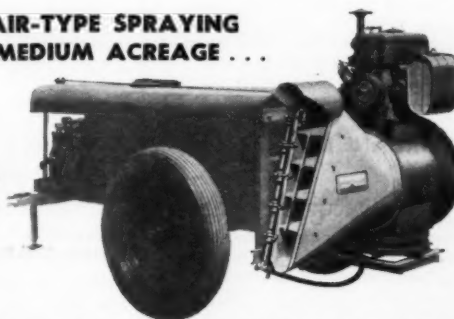
4 to 20 row models

All new HI-CROP with 6-ft. clearance for tall crops, adjustable boom heights for any row or field crop.



**FOR MODERN AIR-TYPE SPRAYING  
OF SMALL TO MEDIUM ACREAGE . . .**

**THE  
ECONOMICAL  
8-RC  
AIRCROP**



Sprays swath from 30 to 40 feet wide. Has 21-inch axial flow fan and 180° rotation. For attachment to sprayers with pumps delivering 7 gpm or more at 400 lbs. pressure.



Write for John Bean Catalog L-1144 and L-1120 today!



**John BEAN**

LANSING 4, MICHIGAN  
SAN JOSE, CALIFORNIA

Division of Food Machinery and Chemical Corporation





## How Niagara Helps You Win The Game of Crops and Robbers

Give your row crop acres the best of protection with these exclusive **NIAGARA** formulations. Enjoy better yields. Always available fresh and in full toxic strength. See your local **NIAGARA** field man.

### C-O-C-S FUNGICIDE

This natural copper fungicide is the old favorite dust or spray material for thousands of growers. Effectively controls blight, mildew, leaf spot.

### NABAM SOLUTION

An organic liquid, compatible with most insecticidal sprays. Controls many diseases, particularly early and late blight on potatoes, tomatoes, celery.

### CHLORO IPC WEED KILLER

A pre-emergence weed control material for snap and lima beans, lettuce, peas, onions, spinach and others. Post-emergence on onions, also.

### PYRENONE DUST

A relatively non-toxic insecticide for application to vegetable crops where the use of materials such as DDT is not permitted.

### CHLORDANE DUST OR SPRAY

One of the most effective insecticides known. Controls cutworms, wire worms, grasshoppers, maggots, ear wigs, beetles, leaf miners and others.

### SOILFUME

Apply 2 to 3 weeks before planting to rid the soil of pests such as nematodes and wire worms that attack vegetable root structures and restrict yields.

# Niagara DUSTS and SPRAYS

Niagara Chemical Division

FOOD MACHINERY AND CHEMICAL CORPORATION

Middleport, N.Y., Richmond, Calif., Jacksonville, Fla., Tampa, Fla., Pompano, Fla., Wyoming, Ill., New Orleans, La., Ayer, Mass., Harlingen, Tex., Pecos, Tex., Yakima, Wash., Pine Bluff, Ark. Canadian Associate: NIAGARA BRAND SPRAY CO., LTD., Burlington, Ontario



## STATE NEWS

(Continued from page 18)

Bureau Co-operative Association.

**New officers** of the Pennsylvania Vegetable Growers Association are Fred Brehm, Dilltown, president; Joe Klock, Easton, vice-president; Joe Weinschenk, New Castle, vice-president, and Jim Garrahan, Kingston, secretary-treasurer. — *Robert Fletcher, Ext. Veg. Crops Spec., University Park.*

### Top Tomato Growers

**OHIO**—The 1955 champion tomato growers in the Top Ten tomato club are Herman W. Gerken and Karl W. and Vernon K. Meyer, all of Napoleon.

Eugene Wittmeyer, Ohio State University extension horticulturist, said Gerken produced 26.34 tons per acre on 4 acres, more than double the state average yield last year of 11.7 tons. The Meyers' yield on 29.4 acres was 21.64 tons per acre.

The Ohio Top Ten tomato club includes growers with yields in the top 10 per cent of those contracting with participating processors. The project is sponsored by the Ohio Agricultural Extension Service, the Ohio Cannery association, and the Baltimore and Ohio railroad.

Awards were made at an annual conference of canners, fieldmen, and vegetable growers in Columbus in February.

### Potato Varieties

**MINNESOTA**—Potato growers are showing a keen interest in two new varieties, Red LaSoda and Dazoc, which have performed well in Minnesota trials. — *Orrin C. Turnquist, Sec'y, St. Paul.*

### Vegetable Research Lab

**FLORIDA**—Research facilities to aid southern Florida vegetable growers are to be constructed soon near Immokalee, according to Dr. J. R. Beckenbach, director



### OHIO GROWERS RE-ELECT OFFICERS

Officers re-elected at the 1956 convention of the Ohio Vegetable and Potato Growers Association recently held in Cleveland, Ohio, include: Seated, left to right: E. C. Wittmeyer, secretary, Columbus; Clinton Seitz, president, Cincinnati; Leonard Bettinger, first vice-president, Swanton. Standing, left to right: Kenneth Zellers, vice-president, truck crops, Hartsville; Edward Drollinger, assistant secretary, Columbus; Leo Gaffin, treasurer, Columbus; and Vernon Kroushore, vice-president, greenhouse, Cleveland. Not shown is Jack Baquin, vice-president, potato, Big Prairie.

of the University of Florida Agricultural Experiment Station system.

The new unit will operate under the supervision of the Gulf Coast Experiment Station, Bradenton. Research will include vegetable test plantings, fertilizer tests, insect control and other experimental work.

### Young Farmer Honored

**IDAHO**—A potato grower has been chosen the outstanding young farmer of 1955 in three counties: Butte, Jefferson, and Bonneville. He is Joseph Nishioka, 33, who owns and operates a 160-acre irrigated livestock, grain, and potato farm near Idaho Falls.

AMERICAN VEGETABLE GROWER

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GROWER



Using film made of BAKELITE Polyethylene, this 120 ft. by 8 ft. greenhouse of Mill Road Greenhouses, Wantagh, N. Y., was estimated at \$500 for all labor and materials as against \$3000 for a greenhouse of conventional construction.

*Thanks to tough, translucent polyethylene*

# They saved 75% on a brand new greenhouse!

*easy to build plans are ready for you, too!*

It's big news for every farm and home! For only a fraction of former costs, you can now build a greenhouse that not only costs far less, but has lower heating and maintenance costs. Certain installations have indicated that vegetable growth is better in these structures.

Translucent film made of BAKELITE Brand Polyethylene (the same material that packages your fruits and produce so well) is the reason why. It's so light in weight only a simple framework is

needed. It's so strong even hailstones bounce off harmlessly!

Complete plans are available for making "polyethylene greenhouses." You can adapt the basic plan to any size you wish. For a free set of plans, write today to Dept. NB-66.

**DID YOU KNOW:** Pipe made of tough BAKELITE Polyethylene provides a new, easy, low-cost way to the finest farm water system. Pipe is easy to install with simple tools.

*It pays to specify  
film made  
of...*



**BAKELITE COMPANY,** A Division of Union Carbide and Carbon Corporation **UCC** 30 East 42nd Street, New York 17, N. Y.  
The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC

## HORMONE for TOMATOES



**"I Picked Ripe Tomatoes  
3 WEEKS EARLIER Because  
I sprayed my tomatoes with  
BLOSSOM-SET Hormone."**

Gus Schluterman, Chicago, Ill.

### YOU CAN DO IT, TOO!

Use BLOSSOM-SET Hormone on your tomatoes to stop blossom-drop, make blossoms set fruit. Your tomatoes will ripen weeks earlier. They'll be larger, meatier, richer in color, and more deliciously flavored. And you'll get more tomatoes on every plant!

### PROVED BY EXPERIMENT STATIONS!

Experiment Stations all over the country have proved the effectiveness of BLOSSOM-SET. In Massachusetts a test plot yielded 276 ripe tomatoes on the first day of picking; not a single tomato was ripe on an unsprayed comparison plot. In Georgia, 30 lbs. of tomatoes were picked from a test plot in the first 3 1/2 weeks of picking and less than 1 1/2 lbs. from an unsprayed plot. In Minnesota, BLOSSOM-SET-sprayed tomatoes ripened two weeks earlier than unsprayed tomatoes.

### PROVED BY YEARS OF ACTUAL FIELD USE!

For years, growers all over the country have sprayed their tomatoes with BLOSSOM-SET to get early tomatoes and tomatoes of superior quality. An Illinois grower added BLOSSOM-SET to his fungicide sprays; his tomatoes ripened 3 weeks earlier, brought premium prices. On a farm in Northern Kentucky, first pickings from a BLOSSOM-SET-sprayed field yielded 612 lbs. per acre compared to only 136 lbs. per acre from a comparison field.

### EASY TO USE!

BLOSSOM-SET is the hormone which can safely be sprayed on the whole plant. Just dilute with water and spray when the first blossoms open up. Combine with insecticide or fungicide sprays for greater economy of application. Use hand, tank, or power sprayer. The 8 oz. concentrate makes 50 gallons and treats 3 to 5 acres.

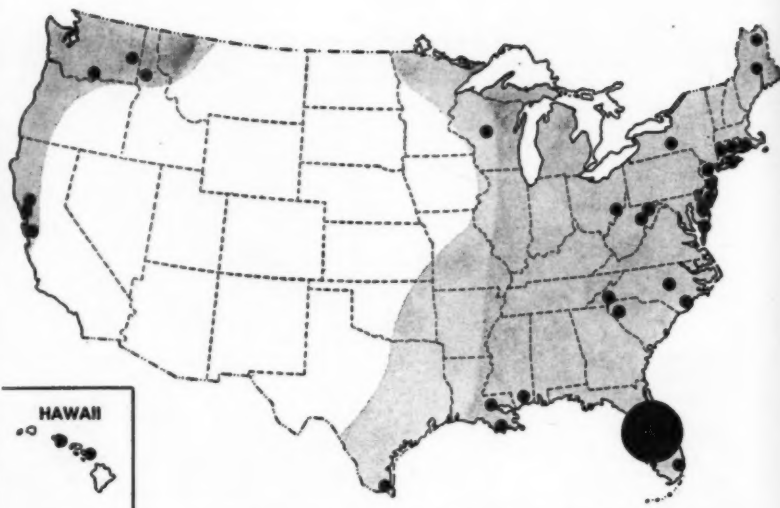


**ORDER FAMOUS  
BLOSSOM-SET TODAY!**  
The original tomato hormone spray that stops blossom-drop, makes blossoms set fruit!  
8 oz. Agric. Conc. .... \$5.95  
(makes 50 gals.)  
1 pt. (makes 4 gals.) ..... 1.75  
for 1/4 acre.....  
12 oz. BOMB for 100 plants.... 1.79

at your dealer or direct from

**Science Products Company, Inc.**

1230 E. 63rd St. Dept. A 46  
Chicago 37, Illinois  
(No stamps, No C.O.D.'s—please)



Black circles show locations of known, shaded areas of potential, molybdenum deficiency.

## Is Molybdenum Deficiency Reducing Your Yields?

**Vegetables grown on soils deficient in  
molybdenum are low in quality and yield**

By **GEORGE S. CRIPPS**

Climax Molybdenum Company

**E**XTENSIVE research and field testing during the past two or three years shows many soils in the United States are lacking in the essential plant nutrient, molybdenum. Field responses to this trace element have been reported for many plants, and about ten crops are now being grown commercially in this country with the aid of the molybdenum treatments.

The lime-loving crops as a rule require more moly than do acid-loving crops. Vegetables showing highest response have been cauliflower, broccoli, cantaloupe, pumpkins, beets, cabbage, Brussels sprouts, turnips, cucumbers, kale, radishes, celery, squash, lettuce, tomatoes, peas and beans.

### Soil Deficiencies

Acid soils are most likely to be deficient in molybdenum since at low pH the element is commonly bound in a form unavailable to the crop. The moly can be released to the crop by raising the pH of the soil, often one of the principal functions of liming. Liming naturally imparts other qualities to the soil, but where release of moly is its main role, a few ounces of a moly chemical may be more effective and inexpensive than lime applications.

Next to the relationship between acidity and molybdenum availability, the most important generalization

about soils is that highly productive fertile soils are likely to have sufficient moly, whereas poorer soils will probably be deficient.

Highly leached soils (such as coastal sands), hill country soils, or soils that have been heavily cropped, for example, may be totally deficient in the element. Alkaline soils in regions of heavy rainfall are apt to be deficient too, but not those in regions of little rainfall.

Most of the responses to moly reported in this country occurred where one would expect to find them on the basis of soil types: in the acid-soil regions east of the Great Plains and along the Gulf of Mexico, and in the Pacific Northwest.

### Crop Deficiencies

Molybdenum deficiencies have been reported in cauliflower grown in Rhode Island, New York (upstate as well as on Long Island), New Jersey, Delaware, Maryland, West Virginia, Ohio, Louisiana and Florida. In Florida molybdenum deficiencies have been reported in broccoli and tomatoes. Cantaloupe has shown response in New York and North Carolina, and in Wisconsin and Washington, responses have been obtained on canning peas.

Moly is required by legumes for the fixation of nitrogen; hence, deficient legumes exhibit the symptoms of nitrogen starvation. The crops are pale in color, stunted and difficult to

establish

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8 Ounce

Where treatment an acre year. Th sprays, e with solu cultural mixed w plied as a an inert by dustin ing.

Follow of moly vegetable responses country.

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establish, and low in protein content.

Moly is also needed by all crops, both legumes and non-legumes, to reduce nitrate nitrogen to a form which the plant can utilize in producing protein. The yellow mottling of leaves characteristic of molybdenum-deficient plants is generally the result of accumulation of nitrates. Lacking the necessary protein, the plant cannot develop normal leaf tissue and distortion results. Such malformation is particularly evident in cauliflower, broccoli and Brussels sprouts.

The leaf curl or cupping associated with plants such as beans, cucumber and melons is due to decreased growth of tissue at the outer edges coupled with more normal growth in the central area.

It should be remembered, however, that deficiencies are not always confined to one element, and that symptoms are not always infallible as diagnostic aids. Systematic testing with suspect elements should always be conducted before general application is made. Relatively simple plot tests have been developed for molybdenum deficiencies, details of which can be obtained from experiment stations, county agents, or the Climax Molybdenum Company, 500 Fifth Ave., New York 36, N. Y.

#### 8 Ounces an Acre

Where deficiencies occur, the usual treatment for vegetables is 8 ounces an acre of sodium molybdate each year. This may be applied in field sprays, either alone or in combination with soluble fertilizers or other agricultural chemicals. It may also be mixed with solid fertilizers and applied as a topdressing, dusted on with an inert carrier, or applied to seeds by dusting or soaking prior to sowing.

Following are detailed descriptions of molybdenum deficiencies for 17 vegetables which have shown mild responses in different soils of this country.

#### Deficiency Symptoms

**Beets, table:** Initially the leaves will be light green in color, slowly changing to a yellowish green. This is usually followed by a characteristic cup-like distortion of the leaf which turns brown at the edges, progressing from the tip inward. Where a severe deficiency exists, the plant will be stunted and have narrow leaves. The yellowing makes the red veins stand out clearly.

**Cauliflower, Broccoli:** The most common symptoms are those of "whiptail." Tissue growth along the midrib of the leaf is uneven, resulting in a distortion which gives the leaf a ruffled or pleated appearance. This and cupping are usually most evident in the younger leaves of the plant. Heads do not develop or, if they do, develop unevenly with a ragged unthrifty look. A mottled yellowing may be noted between the veins, while tissue immediately adjacent to the vein remains green. If the deficiency is more severe, the mottled areas turn brown and holes form. In some cases leaf distortion may occur before mottling becomes evident.

**Brussels Sprouts:** The symptoms are, in general, similar to those of cauliflower and broccoli. They occur first in the younger leaves with mottling and marked cupping. As growth progresses the symptoms described as whiptail become increasingly evident.

(Continued on page 24)

From **3 1/4** mph for "creeper" work  
to **20** for transport and travel

You can match any truck-farm job, crop or soil condition with *just-right* travel and engine speeds with the new 12-speed, 3-plow Case "300." Travel as slow as you *have* to for transplanting or early cultivating . . . or as fast as you safely *can* for light tillage, hauling or transport. There's no need ever to race your engine.

With 12 overlapping speeds . . . 5 from 3/4 to 4 mph, 5 more from 4 to 9 mph, plus 2 for transport up to 20 mph . . . you can keep the engine properly loaded at normal speeds for top-torque, top-economy, as well as top machine efficiency.

You'll like the Case "300" for other reasons, too . . . for two clutches, hand and foot, with independent PTO . . . fast, sharp turning that pivots into the next rows . . . quick-dodge steering with easy, positive cam-and-lever action . . . 22-inch crop clearance . . . duo-control selective lift . . . one-minute Eagle Hitch . . . 48 to 88-inch wheel tread range . . . Powr-Shift wheel spacing over a 20-inch range.

12-Speed **CASE** "300"  
3-plow



#### Ask Your Dealer About Matched Tool-bar Planters . . . Cultivators

Ask for a demonstration with the new Case "300" and Economy Tool Bar (above) or Double Tool Bar for narrow row vegetables. For tough Western soils, see the new heavy-duty Western Cultivator. Inquire about the Case Income Payment Plan by which you can buy tractors and equipment when you need them, pay when you have money coming in. J. I. Case Co., Dept. D-216, Racine, Wis.



# SAVE

up to **\$150** per acre  
with

# ALANAP

## new proved weed killer for cantaloupe growers

Alanap®, Naugatuck's new before-and-after weed killer offers you great new savings by practically eliminating hand weeding. Spray Alanap (pre-emergence) after seed is covered. Annual weeds are killed before they can appear. Specific instructions are available for post-emergence applications.

Country-wide usage conclusively proves:

1. Alanap can save growers of cantaloupes, watermelons and cucumbers from \$35 to \$150 per acre in weeding costs.
2. One pre-emergence application of Alanap gives excellent control of a wide variety of weeds for 3-8 weeks—even after heavy rains.
3. Alanap is safe on many recommended crops, non-hazardous to humans and animals and is easy to apply.

This season you can't afford to be without Alanap.

Order Alanap from your local supplier today. Write, wire or phone us if unable to locate immediate source of supply.



**United States Rubber**  
**Naugatuck Chemical Division**  
Naugatuck, Connecticut

producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synklor, MH, Alanap, Duraset.



## MOLY DEFICIENCY

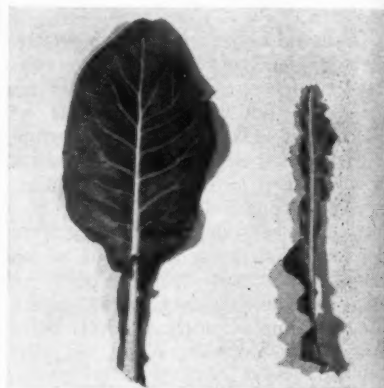
(Continued from page 23)

**Cabbage:** A yellowish mottling develops throughout the leaf areas between the veins. The younger leaves remain small and narrow. Hearting is prevented by the twisting and cupping. As the symptoms progress, the edges of the leaves turn brown, dry out and shrivel. Older leaves have a cupped and scorched appearance.

**Lettuce:** The leaves are initially pale green to yellow and the plant is stunted. The edges of the leaves turn brown, a condition which may extend irregularly into the leaf area. Cup-like distortion and narrow leaves which prevent the formation of hearts usually occur.

**Spinach:** Pale yellow leaves which develop brown areas and show distinct cupping are the chief symptoms. This plant is usually very sensitive to molybdenum deficiency.

**Kale:** Newer leaves show more yellowing than older leaves. The yellow color is bright and occurs between the veins. The young leaves scorch or brown at the tips although some brown spots may develop in the mottled areas also. Distortion is not usually noted.



Pleated leaf at right is example of whiptail of cauliflower caused by molybdenum deficiency.

**Turnip:** Severe yellowing and bleaching of the older leaves with mottling and leaf edge browning. The brown margins then distort and show marked cupping.

**Radish:** The leaves turn bright yellow between the veins followed by browning of the edges and cupping. The symptoms usually progress from the older to the younger leaves.

**Pea:** The leaves turn yellow and become somewhat translucent, with greener areas immediately adjacent to the veins. The leaf edges may turn brown and curl inward, or the entire leaf may wilt, a condition usually occurring first in the older leaves. Dwarfing is also common.

**Beans:** Molybdenum deficiency symptoms in this crop are sometimes called "scald." A yellowish mottling which gradually becomes brown occurs between the veins. Leaf edges will wilt or scorch and then the leaf itself will wither, and upcurled margins may be observed. In many cases flower and seed yield is markedly reduced.

**Potato:** New leaves are pale green and then turn yellowish-green between the veins. These areas ultimately turn brown along with uneven browning and curling at the leaf edges. If the deficiency is more severe, new leaves will turn brown and shrivel.

**Tomato:** Older leaves appear light green with yellow mottling between the veins. The older leaf tips turn brown and this progresses into the leaf area. Curling of the leaves is common. Symptoms progress from the older to the younger leaves and ultimately the formation of flowers and fruit is greatly reduced.

**Celery:** The tops turn pale green and then yellow. The symptoms are essentially those of nitrogen deficiency.

**Cantaloupe, Cucumber:** The leaves are light green to yellow, and develop brown edges which wither and curl inwards. Stunting is also present. THE END

Plans for a modern, low-cost potato storage are now available to AMERICAN VEGETABLE GROWER readers. The aboveground 50-foot square storage is designed to hold 17,500 bushels. A list of materials is included with the plans. Send remittance of \$1.50 in form of check or money order to AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

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## Answering Your QUESTIONS

Don't let your questions go unanswered. Whether large or small, send them with a three-cent stamp for early reply to Questions Editor, AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

### PEPPER VARIETY

I have been losing several hundred dollars each year from blight in my pepper crop. I noticed an ad by the Asgrow Seed Co. for a pepper that I believe was blight resistant. Could you give me the name?—Mississippi.

The Yolo Wonder is undoubtedly the variety you saw. This variety is recommended to bell pepper growers in Mississippi on the basis of yields and resistance to certain strains of mosaic. No pepper variety we know of is resistant to leaf blights which are best controlled by spraying. Your county agent can advise you on the sprays to use.

### PLANTING DATES

Selecting planting dates to bring an even harvest is a problem on my 40 acres. I need a steady supply of vegetables for roadside sale. How do others meet this problem?—Massachusetts.

Your own experience is probably the best guide. Keep a good set of records, including planting dates, harvest dates, and weather conditions. The Cropmeter may help you. It relates climatic conditions to plant growth and by setting a dial to the date harvest is desired, you can find the date to plant any one of several hundred varieties listed. It is available from Floyd Slentz, Seabrook, N. J., for \$2.

The following table, prepared by John Carew, Michigan State University, might help you in predicting harvest dates by telling the number of days from flowering or blooming to harvest. For instance, if sweet corn ears show silk on July 8, you can plan for harvest around July 29. Peas that bloom June 1 will be ready June 19 and so forth.

Crop	Approximate number of days between flowering and harvest
Snap beans	14
Lima beans	40-45
Sweet corn	21
Cucumber (pickles)	4-8
Cucumber (slicers)	14
Eggplant	30
Muskmelon	35
Peas	18
Pepper	24-30
Summer Squash	7-10
Tomato	45-50
Watermelon	45-50

### LEAF LETTUCE VARIETY

Where can I buy seed of the Grand Rapids Tipburn-resistant H-5 strain of leaf lettuce as described in your story on Cleveland greenhouse growers.—Indiana.

Try these Canton, Ohio, seedhouses: Holmes Seed Co. and Letherman Seed Co.

### WINTERIZING WITH PLASTIC

Can I winterize my glass greenhouse by installing plastic film on the inside?—Ohio.

According to Dr. E. M. Emmert, who developed the plastic greenhouse idea at the University of Kentucky, several greenhouse men have used plastic inside their glass houses with success. They cut their heat bills by at least 40 per cent and watering by as much as 50 per cent. They fasten plastic to the sashbars in most cases. In a plastic house it is important to have ridge ventilation to let out air of high humidity whenever possible without chilling the plants. This might be a problem also in a glass house "winterized" with plastic.

## the Model B NOW handier than ever!

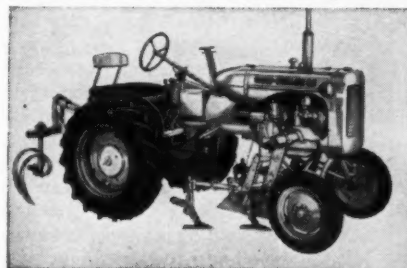


### The handiest, thriftiest tractor YET— that's the Allis-Chalmers Model B!

Its power, convenience and versatility make it a favorite with vegetable growers and specialty farmers everywhere. It provides high clearance and good operator vision . . . ideal for row-crop cultivation. And it can be equipped with just the right tool for any farm job.

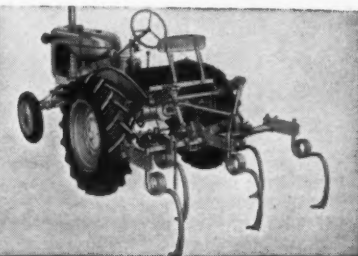
Quick SNAP-COUPLER hitch gives the Model B added timesaving convenience and enables it to handle a full line of new mounted implements — including a 2-bottom mounted plow, new 7-foot, spring-tooth field cultivator, new deep-tillage, coil-shank field cultivator, new row-crop cultivators and new planters.

Visit your Allis-Chalmers dealer and check the many advantages of the Model B. Compare performance and price, and you'll agree that the Model B is the tractor for you. Write for free illustrated catalog.



New deep-penetrating, 5-tooth mounted coil-shank field cultivator for the Model B Tractor. SNAP-COUPLER hitch.

Model B and one of three new models of single-row cultivators. Right and left front gangs operate independently.



### OPTIONAL EQUIPMENT FOR THE MODEL B

SNAP-COUPLER hitch, rear lift shaft, latches and ram

Rear Power Take-Off and Clutch-Type Pulley

Hydraulic Pump  
Adjustable Front Axle  
Side Weights  
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SNAP-COUPLER is an Allis-Chalmers trademark.

## ALLIS-CHALMERS





## 4 Reasons Why It Pays to Use

**Du Pont**  
**MARLATE® 50**

methoxychlor insecticide

### 1. High Killing Efficiency

These vegetable insects are very sensitive to "Marlate" 50 . . . are readily killed!

#### CUCUMBERS, MELONS, SQUASH

striped cucumber beetle  
spotted cucumber beetle  
squash vine borer

#### SNAP and LIMA BEANS

Mexican bean beetle and  
leafhoppers

#### TOMATOES and COLE CROPS

flea beetles

#### ASPARAGUS

asparagus beetles

### 2. High Residue Tolerance

(14 parts per million for methoxychlor)  
This means you can use "Marlate" 50 up to 7 days before harvest.

### 3. Residual Control

The longlasting residue from "Marlate" 50 is effective protection from one spray to the next.

### 4. High Plant Safety

"Marlate" 50 does not injure sensitive plant foliage of cucumbers, melons, squash, young tomato transplants, beans and other crops.

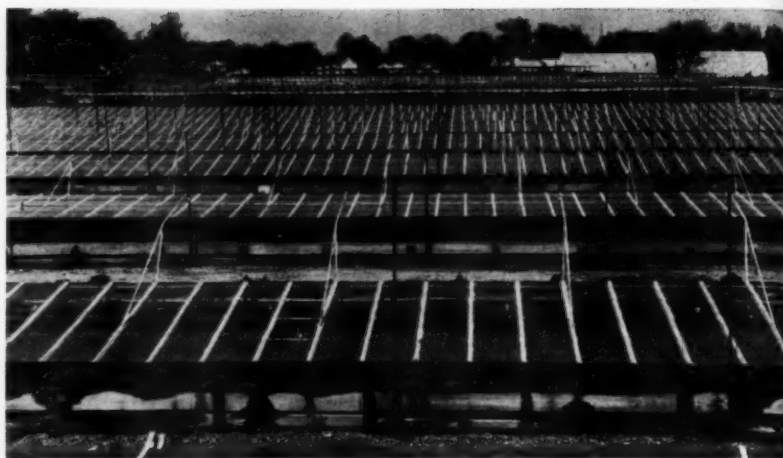
Use "Marlate" 50 to control insects on fruit, forage crops and livestock, too. It's ideal for controlling hornflies on cattle by the hand-dusting method. Simply apply, just as it comes in the bag, to cow's back.

**MARLATE® 50**  
methoxychlor insecticide

On all chemicals, follow label instructions and warnings carefully.



BETTER THINGS FOR BETTER LIVING  
...THROUGH CHEMISTRY



Twelve-acre hotbed range of Richardson Bros., St. Elmo, Ill., is one of largest in country.

## 8 MILLION Plants a Year

Growing vegetable plants is big business at  
Richardson Brothers' 12-acre hotbed range

By ELDON S. BANTA

**G**ROWING and selling 8 million vegetable and flower plants a year is the business of the Richardson Brothers, Herman and O. M., of St. Elmo, Ill. They place first emphasis on growing quality plants, and their methods are unique.

Only one small greenhouse is in use on this farm, where seedlings of plants are made. All of the plant growing after the seedling stage is carried on in 12 acres of hotbeds, probably one of the largest establishments of hotbeds in the country.

The labor involved in care and operation of hotbeds would seem to offset the economy in cost over greenhouses. But not so at Richardson Brothers. The hundreds of sash can be opened or closed in a matter of minutes, simply by pushing a button. The sash opening devices were developed and built by O. M. Richardson, and are one of many laborsaving devices which add to the efficiency of their plant growing business.

### Soil Preparation

Perhaps the first place to begin in a plant-growing enterprise is with the soil or rooting media. The Richardson Brothers do an exceptionally fine job of soil preparation. It begins in the field with the 1,100 cubic yards of topsoil they use to fill flats.

It takes five years to prepare this soil for hotbed use. Four years are devoted to growing soybeans and rye to build up a high organic level. Soybeans, sown in the spring, receive 500 pounds per acre of triple superphosphate and the rye in the fall gets 500

pounds of 12-10-12 fertilizer. Each crop is disked in thoroughly before the next is seeded. Then during the fifth year the soil is left bare and disked frequently with an 18-inch stump disk, primarily for the germination and killing of all weed seeds in the rich topsoil.

In August of the fifth year fertilizer is added to the soil to bring it up to the desired levels determined by soil tests. Krilium is added in September and disked in thoroughly. This additive helps make the soil porous and loose, essential for good rooting of plants. In October or early November the soil is removed with a power scoop and hauled into the shed, ready



Herman Richardson at work in transplanting house. Crew of 25 women on four-day week do transplanting, are paid 13 cents per flat. Efficiency is increased by first grading plants for size, so only plants of same size go into each flat.

AMERICAN VEGETABLE GROWER

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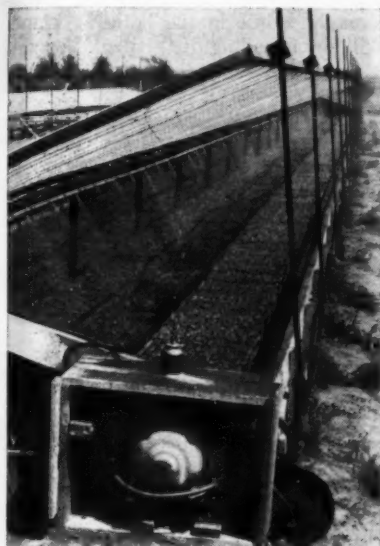
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for use. About three-fourths of an acre, 18 inches deep, supplies the necessary 1,100 cubic yards of rich soil. In only two years of the intensive soil-building crop system the Richardsons have the exposed subsoil built up into soil better than most ordinary topsoils.

For the rooting media in flats, five parts of soil are mixed with one part peat. A powerful Royer soil shredder does the mixing.

A prime rule at Richardson Brothers is to keep a plant growing steadily once it starts, never stunt it. Accurate



Hotbeds get just enough water to prevent wilting. Each bed holds 600 flats, is 144 feet long and covered with sash 4x6 feet. Beds are built of cypress wood and Celotex and heated with hot water. At foreground is automatic opening and closing device. Two-way electric switch (Furnace Electric Co., Batavia, Ill.) on motor (Sterling Motor Co., Los Angeles, Calif.) opens and closes the 144 feet of sash through sash attachments built by G. M. Richardson in the farm shop.

control of hotbed temperature, watering, and fertilization are keys to good plant production.

#### Low Temperatures

After the seedlings are transplanted to flats and placed in the hotbeds, they are held between 35° and 45° F. This is a lower temperature than many plant propagators prefer. However, the Richardsons have found this an excellent temperature to hold early plants for six to eight weeks, and later plants, as those grown in April, up to three weeks before they are sold.

First tomato seed is planted February 1, then seedlings are made every four days until March 10. They are transplanted to flats in three or four weeks and placed in hotbeds. Temperature in the seedling house is held between 40° and 45° F., for tomato and eggplant, and between 45° and 50° F., for peppers. First pepper seed

(Continued on page 28)

## New for '56 two new models with Stainless Steel Tanks

For Spraying Dilute, Semi-Concentrates or Concentrates  
The 200 Gallon Stainless Streamliner

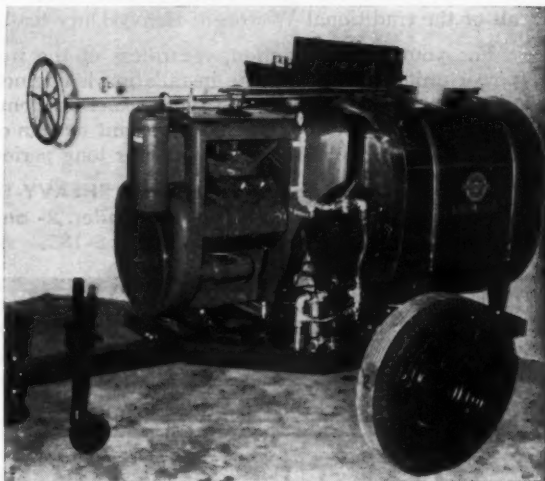


200 Gallon  
Stainless Steel Tank

7 1/2 G.P.M. Diaphragm  
Pump or  
30 G.P.M. Roller  
Pump

The new "Stainless Steel Streamliner" with a 200 gallon stainless steel tank will give years of trouble free service at LOW initial cost. "ONE MAN OPERATION", light in weight (Less than 2000 lbs.). This combination dilute, semi-concentrate and concentrate sprayer is acclaimed as the outstanding sprayer of 1956. Other features include dual purpose for both orchards and row crops, adjustable axle as to height and width, and a choice of two special pumps for either dilute or high concentrate application.

## The 100 Gallon Combination Buffalo Turbine Sprayer and Duster



Light enough to be  
handled on "Hilly"  
ground with the  
SMALLEST TRACTOR  
or  
A "JEEP"

Large enough for the big grower and small enough for the small grower. The "Buffalo Turbine" combination Sprayer and Duster comes with a stainless steel 100 gallon tank, skid or trailer mounted. Designed for orchard or row crop spraying or dusting.

SPRAYS dilute, semi-concentrates or concentrate mixtures  
DUSTS micronized chemicals, regular dusts or pellet baits  
DISTRIBUTES Pellet or Granular Insecticides or fertilizers

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INC.

GOWANDA, NEW YORK

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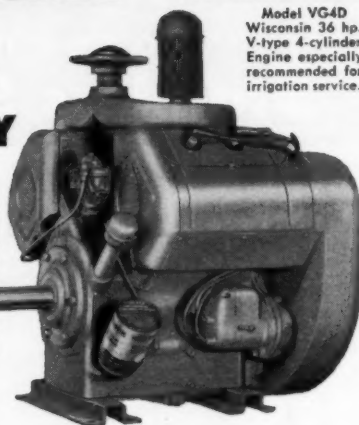
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### HEAVY-DUTY DEPENDABILITY



Wisconsin-Powered  
Marlow Pump



Model VG4D  
Wisconsin 36 hp.  
V-type 4-cylinder  
Engine especially  
recommended for  
irrigation service.

## in a Compact WISCONSIN "POWER PACKAGE"

Wisconsin Heavy-Duty Air-Cooled Engines are not big enough to replace those big, heavy engines that are commonly used on large irrigation systems, where great pumping capacity is required.

BUT . . . you can expect from your Wisconsin Engine (3 to 36 hp.), the same rugged service, the same operating dependability, hour after hour, day in and day out, that you would get from one of the better Big Engines.

Wisconsin Heavy-Duty Air-Cooled Engines, "tailor-made" for sprinkler irrigation service, have such features as Stellite-faced exhaust valves, solid Stellite valve seat inserts; positive type valve rotators; automatic high temperature safety switch, plus dependable, flywheel-fan AIR-COOLING (efficient at all temperatures up to 140° F.), and all of the traditional Wisconsin Heavy-Duty features.

For your own protection, regardless of the make or size of the power unit, be sure that the installation is engineered by competent personnel, fully familiar with the exacting demands of irrigation service. Don't overlook the all-important margin of safety that spells economical, trouble-free operation over long periods.

There is no more rugged engine than a "HEAVY-DUTY WISCONSIN" . . . available in 12 models (single cylinder, 2- and 4-cylinder sizes, 3 to 36 hp.). Write for irrigation folder S-181.



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## WHAT'LL IT MIX WITH?

### 1956 completely revised chart

That is the important question in economical spraying. The compatible nature of spray materials is mighty important in safe and effective spraying and AMERICAN VEGETABLE GROWER has produced an ingenious

### SPRAY COMPATIBILITY CHART

which tells at a glance just what materials will mix safely. Printed in three colors, mounted on Bristol board paper, it is an accurate guide in the safe and successful mixing of all spray chemicals.

Better send for a copy—25c each; foreign single copies—75c each

Quantity Prices on Request

AMERICAN VEGETABLE GROWER,  
Willoughby, Ohio.

## 8 MILLION PLANTS

(Continued from page 27)

goes in January 1 and takes about six weeks before the seedlings are transplanted.

Light waterings are generally the rule. Overwatering tends to make a plant too soft when set out-of-doors. When plants are ready to transfer to hotbeds, they get a light sprinkling of fertilizer in the water which helps them take off quickly when placed under the hotbed conditions.

For protection against damping-off, the Richardsons use Semesan. Occasionally, while in the hotbeds, plants will get a feeding of fertilizer through



White cedar flats 14x20 inches hold 8 wood veneer boxes 5x7 inches. Each box holds from 8 to 12 plants, makes convenient sales unit in retail stores. Boxes are made in Richardson shop. Flats are made by Hill & Sons, Cook, Minn.

the sprinkling system. All practices involving temperature, watering, and fertilization are geared to making the plants grow slowly and evenly and to develop extensive root systems.

### Marketing the Plants

Careful marketing of their plants is a must with Richardson Brothers. Fourteen trucks with specially designed beds carry plants throughout Missouri, Tennessee, Kentucky, Indiana, Ohio, Michigan, and Illinois. These trucks service the retail outlets from one to three times a week during the spring. O. M. Richardson starts a route and establishes the retail outlets, then turns the job over to a driver. The driver soon learns how many plants to drop off at a store, and picks up any plants not sold since his last delivery. Garden centers are generally the best outlets.

Among the vegetable plants grown are tomato, eggplant, pepper, cabbage, kohlrabi, collards and sweetpotato slips. THE END.

The plastic greenhouse represents a major step in low-cost production of greenhouse vegetables. An 18x24-foot plastic house can be built for \$250, and overhead and heating costs are lower than in glass houses. For a set of building plans and instructions, send 25 cents in coins or stamps to AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

AMERICAN VEGETABLE GROWER

## CALENDAR MEETING

May 10—Ohio Greenhouse Convention, Dayton, Ohio. Wittmeyer, D.

June 14-16—Midwest Horticultural Convention, St. Paul, Minn. P. O. Box 110.

June 27-29—Society annual convention, South Dakota. Brookings.—W.

July 28-Aug. 1—Vegetable Week.

Aug. 1-Sept. 1—Tour conducted by American Express Co. and 15, Ohio.

Aug. 11-12—Field Day, Urbana, Ill. Urbana.

Aug. 14-15—meeting and to Wooster.

Sept. 27-29—table Association, Michigan. Colonial Dr., C.

Nov. 28-30—America, 48th Mich.—Joseph 17th and Penn. 6, D.C.

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APRIL, 1956



## CALENDAR OF COMING MEETINGS AND EXHIBITS

May 10—Ohio Agricultural Experiment Station Greenhouse Vegetable Day, Wooster.—E. C. Wittmeyer, Dept. of Hort., Columbus 10.

June 14-16—Idaho Shippers Association (including Malheur County, Ore.) annual summer convention, Sun Valley.—Edd Moore, Exec. Sec'y, P. O. Box 1100, Idaho Falls.

June 27-29—South Dakota State Horticultural Society annual meeting, in conjunction with South Dakota Federation of Garden Clubs, Brookings.—W. A. Simmons, Sec'y, Sioux Falls.

July 28-August 4—Eighth annual National Vegetable Week sponsored by the VGAA.

Aug. 1-Sept. 12—Vegetable Growers Association of America, second Grand Tour of Europe visiting England, Norway, Sweden, Denmark, Holland, Germany, Switzerland, and France. Tour conducted by Walter F. Pretzer, % American Express Company, 1425 Euclid Ave., Cleveland 15, Ohio.

Aug. 11—Illinois State Vegetable Growers Field Day, University of Illinois, Urbana.—N. F. Oehker, 208 Vegetable Crops Bldg., U. of Illinois, Urbana.

Aug. 14-15—Ohio Pesticide Institute summer meeting and tour, Wooster.—J. D. Wilson, Sec'y, Wooster.

Sept. 27-29—Florida Fresh Fruit and Vegetable Association annual meeting, Hotel Fontainebleau, Miami Beach.—Geo. Talbott, 4401 E. Colonial Dr., Orlando.

Nov. 29-30—Vegetable Growers Association of America, 48th annual convention, Grand Rapids, Mich.—Joseph S. Shelly, Sec'y, 528 Mills Bldg., 17th and Pennsylvania Ave. N.W., Washington 6, D.C.

## WEED CONTROL IN VINE CROPS

UP to now, Alanap-1 (N-1-naphthyl-phthallamic acid) has been used for weed control in many cucurbit crops. This relatively insoluble acid form has been available only as wettable powder.

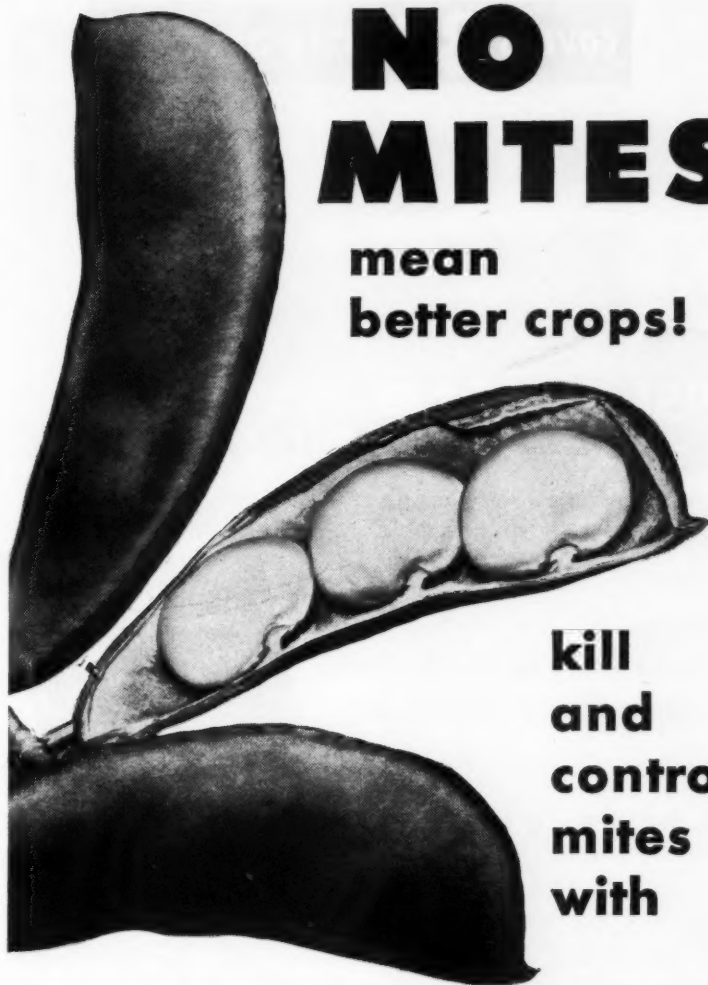
The Naugatuck Chemical Company has now changed their formulation from Alanap-1 to Alanap-3, which is the sodium salt form and is readily soluble in water. This means that in 1956 all new Alanap stock will be 3.

Dr. Robert Sweet, of the vegetable crops department at Cornell University, says there is enough evidence to prove that Alanap-3 is as effective in controlling weeds as Alanap-1, but that there is insufficient data to be absolutely sure it is as safe to use on vine crops.

Alanap-3, like 1, should be applied ahead of weed seed germination and at the same rate (2 to 4 pounds per acre). For best results there should be some moisture in the surface soil at the time of application and a rain following application is desirable to move the material down into the soil. Neither material is recommended for pumpkins or squash. — Phil A. Minges, Veg. Crops Dept., Cornell U.

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# ARAMITE

There's more money for you from better crops. A small per-acre investment in Aramite can make a big dollar difference. Year after year, field results nationwide prove the bigger and better yields you can expect with Aramite—the safest, best-known mite-killer today.

Aramite gives outstanding control of most mite species including Two-Spotted, Atlantic, and European Mites. Equally effective on melons, citrus, corn, tomatoes, apples, peaches, and ornamentals. It is compatible with most insect and fungus-killing chemicals, has longer residual activity and is non-hazardous to humans and animals.

For more than 19 fruit and vegetable non-fodder crops, including lima beans, the Miller Amendment (Public Law 518) has approved Aramite with a tolerance established of one part in a million, because its disappearance is so rapid.



## United States Rubber

### Naugatuck Chemical Division

Naugatuck, Connecticut

producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synklor, MH, Alanap, Duraset.

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## Spinach Joins Hybrid Family

**S**PINACH is the newest member of the hybrid vegetable family. In July, 1955 Early Hybrid 7, a co-operative product of Dr. Henry A. Jones of the USDA and co-workers at the Texas Agricultural Experiment Station, was released to commercial growers. A limited quantity of seed was commercially planted in the fall of 1955, and a much larger quantity should be available for the fall crop of 1956.

The high-yielding hybrid combines resistance to blue mold and blight and has an upright habit of growth suitable for mechanical harvest. The dark green leaves are large and medium-savoyed. Early Hybrid 7 is primarily for fall planting since it bolts rapidly under conditions of long day length and high temperature.

Yield tests conducted in the Texas spinach areas in the fall of 1953 and

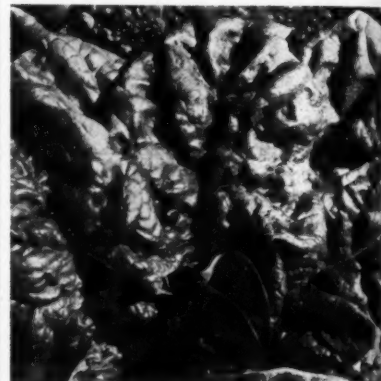


Photo courtesy Associated Seed Growers, Inc.

Early Hybrid 7 spinach has joined the ranks of successful, high-yielding hybrid vegetables.

1954 show that Early Hybrid 7 consistently outyielded standard varieties by as much as 35 to 40 per cent. Michigan State reports that last fall the new hybrid outyielded Long Standing Bloomsdale and Giant Thick Leaf by as much as 2 to 1. An experiment conducted in Illinois in 1954 yielded comparable results.

Varieties of spinach are normally dioecious, which means that both male and female plants are present. Dr. Jones' hybrids are produced by roguing all of the male or pollen-producing plants from the seed parent and allowing the male plants of the pollinator line to pollinate the female plants. The hybrid seed is harvested only from the female rows.

In a new method of producing hybrid spinach seed, monoecious plants having both male and female flowers

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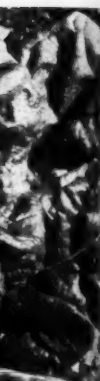
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are closely inbred. When used in making a hybrid, it will increase uniformity. A very high degree of crossing can be obtained with highly monoecious female lines crossed with good pollen parents. This procedure eliminates the necessity for roguing and reduces cost of hybrid seed. While not currently in use, it should aid in future development of improved spinach hybrids.

Early Hybrid 7 is only the first of a series of vigorous, high-yielding hybrids that will find a welcome place in the vegetable industry.—A. E. Thompson, University of Illinois.

## RHUBARB FORCING

(Continued from page 11)

period or temperature below 40° F. or both, nobody seems to know why the plant breaks its dormancy and starts growing in the dark forcing house when watered and brought up to an air temperature of 50° to 65° F. At any rate, growers wait until December before starting the forcing process. Growers who have started their houses in early November have found that the roots just won't sprout.

Six to eight weeks after turning on the heat, the first pullings are made of bright red stalks 1 to 1½ inches thick and 18 to 24 inches long. An outsider who sees only the 100- to 200-foot-long straw insulated houses can scarcely believe his eyes when he goes inside and sees the colorful crop. Harvesting may continue for five to six weeks; then the houses may be refilled with a new crop of roots.

### Victoria Is Best Variety

There are more than 100 varieties of rhubarb, but only a few lend themselves to the forcing process. Strawberry and Early Mammoth varieties are occasionally used for the first crop because they can be forced rapidly. However, they do not yield as well as Victoria, which has excellent color, quality, and yield, and stands shipping well.

Macomb County rhubarb is widely distributed in the east and central parts of the United States, reaching distant markets by air freight, railway express, and trucks. The marketing season is Christmas through May.

THE END.

#### VEGETABLE GROWERS!

We are looking for factual accounts of grower experiences in irrigating vegetables and small fruits for our coming June Irrigation Issue. Send letters and, if available, photos. Regular author payment. Address contributions to Richard T. Meister, editor, AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

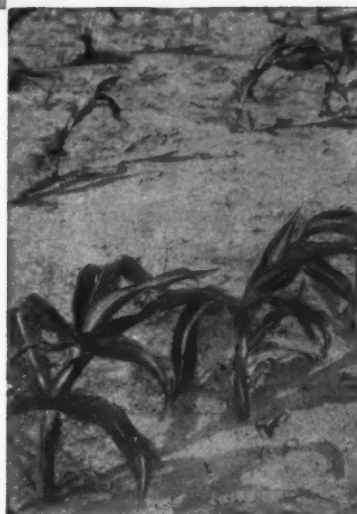
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Crop surrounded by quack grass  
...where no MH is used

with

# MH



MH was sprayed on quack grass  
prior to planting this crop

Quack grass is licked! Now MH not only reduces quack grass growth, but also eliminates this nuisance, in areas devoted to high-value crops. MH is so safe that seeds of vegetable and field crops can be planted on treated areas as soon as plowing and preparing the soil are completed. No soil toxicity.

Order MH from your local supplier today. Write, wire or phone us if unable to locate immediate source of supply.



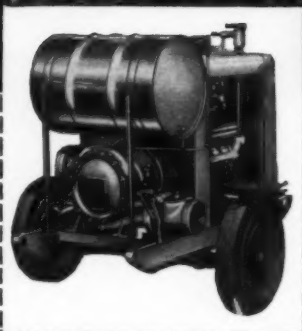
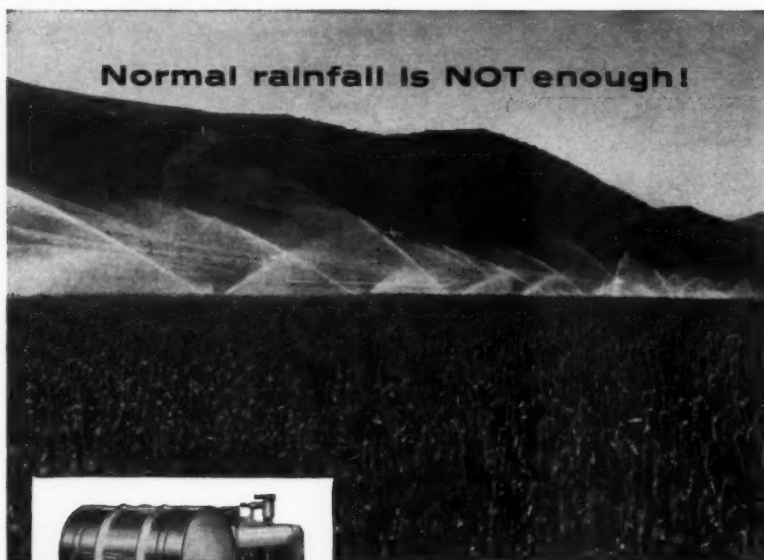
## United States Rubber

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| <input type="checkbox"/> Poultry Tribune                | 2 yrs.           |
| <input type="checkbox"/> Screen Stories                 | 6 mos.           |
| <input type="checkbox"/> True Love Stories              | 6 mos.           |

## SEED GERMINATION

(Continued from page 13)

ing a lever, are available commercially.

**Care of Flats**—Label the seeded flats, sprinkle gently, then place in a draft-free greenhouse or germinating chamber. Most seeds germinate excellently in the temperature range of 65 to 75 degrees F. Certain "problem" seeds will require higher or lower temperatures. Keep flats in a semi-shaded location, or cover with newspapers if in full sun. No glass covering is needed unless the atmosphere is very dry or the room drafty. Check several times a day to see that the vermiculite is constantly moist. Since it holds much water (yet with perfect aeration), sprinklings will be infrequent. Sub-irrigation is often recommended, but is too time-consuming for the average grower. A fine rose on the hose line is fastest and simplest. Apply water gently so the seeds and vermiculite are not disturbed. Check occasionally to see that enough water has been applied to wet it clear down to the bottom.

For the larger operation it may be good economy to construct a special unlighted germination chamber. Just before seedling emergence of any particular variety, the flats are taken to a greenhouse and given normal care.

You'll be amazed how rapidly seeds germinate in vermiculite if these directions are followed. When complete, move flats to a cooler house with full sunlight and good ventilation. The seedlings send their roots down into the soil quickly, therefore no fertilizing is ordinarily necessary. Should growth seem checked, make weekly applications of a complete soluble fertilizer (such as Hyponex, Plant Marvel, or Take-Hold) with a sprinkling can.

**Transplanting Seedlings**—Transplant as soon as seedlings are big enough to handle easily, or when they have their first pair of true leaves. Overgrown seedlings become crowded and spindly, and suffer considerable transplanting shock. Should damping-off occur, dust the affected areas with Arasan or ferbam. However, we predict that this will seldom happen.

**Re-using the Flats**—To re-use your vermiculite-soil seed flats, just scrape off the old vermiculite, work up the soil a bit, reesterilize the flats, and apply new vermiculite. This is a real labor-saver.

**Flattening Up**—Quality of the finished flat depends a lot upon the care used in planting it originally. For this work women are often more efficient than men. One grower in

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Illinois hires his crew of housewives on a four-days-a-week basis.

Grading of the seedlings is an important step in the flatting operation if uniformity is your goal. Tomato plants, for example, can usually be graded into 3 or 4 distinct lengths. Then each flat gets plants of just one grade. This takes a little extra labor, but it's wise to pull several people off the production line to do this important job. Leave the back-breaking lifting jobs to young huskies you can hire for moderate wages. Let them get the flats of soil to the flatting tables, mark the flats, and then remove the finished ones. Make use of conveyors or carts whenever possible.

Some producers find it worthwhile to code mark each flat so they



#### NEW CHILE PEPPER

A new variety of chile pepper, Rio Grande, has been developed by horticulturists at the New Mexico A&M Experiment Station. Growers and processors are pleased with Rio Grande's uniform high quality. Its long, tapering pods make it easy to can and freeze. The new variety has medium pungency and grows well in southern and central New Mexico.—John M. White, Agr'l Editor, State College, N.M.

can tell at a glance who did the flatting, at what time of day, and on what date. Experience has shown that the quality of workmanship declines sharply as the day wears on. Mid-morning and mid-afternoon coffee breaks remedy this situation greatly. Even though the employer may feel that he can't afford this luxury (especially if he pays for the coffee and doughnuts), the added flats turned out will more than make up for it.

Then, unless you are ashamed of your product, label the flats you send out. Let your name be seen in a prominent place. Include the correct variety name, a color picture if possible, and a short set of cultural directions. If the soil is treated with one of the new soil conditioners such as Krilium, include this information. You might even suggest that this conditioned soil would be ideal for growing house plants—a little angle that helps sales among home gardeners.

THE END.

APRIL, 1956



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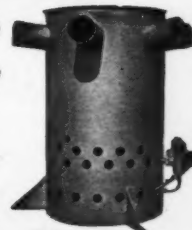
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Large clusters of early fruit were produced on tomato plant which was chilled for 2 or 3 weeks.

## Chilled Tomato Plants Produce More EARLY Fruit

By S. H. WITTWER and F. G. TEUBNER

Michigan State University

**C**HILLING tomato seedlings is something new in plant growing. Yet studies show that flowering is stimulated in the tomato and many other vegetables if the seedlings are exposed to cold.

Some call it "vernalization" and others "thermoperiodicity." We know that with most crops each process—flower formation, fruit setting, and fruit ripening—has its optimum or best temperature. The tomato plant is no exception.

Remarkable benefits to flowering result from two to three weeks of chilling at 50° to 55° F. (night temperature). This is done after the seed leaves, or cotyledons, unfold. Experiments with several tomato types (Forcing, Early Market, Processing, Western) and representative varieties of each have been conclusive.

### Effects on Plant Growth

There are at least four noticeable differences in "chilled" tomato plants.

1) There are fewer leaves before the first flower cluster. Plants flower nearer the ground level.

2) The plants are blockier and have thicker stems, and their survival following transplanting is greatly favored.

3) Flower numbers in the first and second clusters are more than doubled. Fifteen to 20 flowers on branched clusters are not unusual.

4) Fruit clusters are larger, and early yields may be much greater.

The basis for chilling young tomato seedlings is that flower number and the position of the first cluster are determined four to six weeks before the first flowers open. Flower formation occurs during the two- to three-week

interval immediately following the expansion of the seed leaves. Chilling is thus effective during this time.

### Higher Early Yields

Chilling the young seedlings not only increases flower numbers but results in higher early yields. This was demonstrated with 10 varieties in the summer of 1955. During the critical two- to three-week period night temperatures of 65° F. were maintained for greenhouse-grown plants. Plants of the same varieties were grown in a cold frame at 45° to 60° F. After transplanting to the field, early yields (to August 8) were 65 per cent higher for the "chilled" plants. There were no differences in total yields and fruit size. Even during warm spring weather, cool night temperatures of 50° to 55° F. will induce greater flowering and fruiting.

**EARLY YIELDS OF TOMATOES FROM GREENHOUSE-GROWN PLANTS (65° F. NIGHT TEMPERATURES) AND COLDFRAME-GROWN PLANTS (45° TO 60° F. NIGHT TEMPERATURES). (CUMULATIVE YIELDS TO AUGUST 8, 1955, EAST LANSING, MICH.)**

Variety	Early yields (Pounds per plant)		Per cent increase in yield of coldframe grown plants
	Greenhouse	Coldframe	
Vallant	4.6	6.5	41
Fireball	3.7	7.8	111
Siouxann	4.5	10.5	133
Early Chatham	3.8	4.8	27
Early Hycross	6.6	9.8	49
Moreton Hybrid	5.5	7.9	44
Cavaller	2.5	3.4	36
Early Big Hybrid	3.9	6.6	70
Foremost E-21	3.3	5.5	67
Hybrid A	4.5	8.3	84
Average	4.3	7.1	65

Our specific recommendations for chilling tomato seedlings are:

1) Germinate seed in the usual manner at 70° to 75° F., and hold the

AMERICAN VEGETABLE GROWER

seedlings the seed and the first to show. weeks from lows time seedling fl

2) When to show, planting, two to three of 50° temperature transfer to Expose possible.

3) After cold, raised maintain in

4) If chilled, seed earlier than grow very three weeks otherwise of plants off.

5) "Chilled" fruit set, greater number fruit-setting still be natures fall Tomatoes

AMERICAN 1955, page

6) High from "chilled" an adequate fertilizer creased nu



Chilling short reaches growth (cotyledons) leaves begin after being temperatures for stage of growth F. night temp



Chilled tomato is blockier, shoots, flowers fewer number in the first cl

APRIL, 1956



seedlings at warm temperatures until the seed leaves are fully expanded and the first true leaf is just beginning to show. This is usually about two weeks from the seeding date and allows time for transplanting out of seedling flats.

2) When the first true leaf begins to show, either before or after transplanting, grow the young plants for two to three weeks at a night temperature of 50° to 55° F. Either lower the temperature in the plant house or transfer the plants to a cooler area. Expose to as much sunlight as possible.

3) After two to three weeks of cold, raise the night temperature and maintain it thereafter at 60° to 65° F.

4) If tomato seedlings are to be chilled, seed them a week to 10 days earlier than normal, since they will grow very little during the two to three weeks of cold. Use sterilized soil, otherwise more than the normal loss of plants may result from damping-off.

5) "Chilling" does not affect early fruit set, even though it results in greater numbers of early flowers. A fruit-setting "hormone" spray may still be necessary if night temperatures fall below 59° F. (See "Earlier Tomatoes with Growth Regulators," AMERICAN VEGETABLE GROWER, May, 1955, page 18.)

6) Higher early yields will result from "chilled" plants only if there is an adequate supply of moisture and fertilizer for the growth of an increased number of fruit.

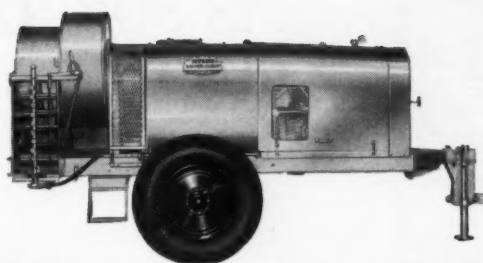


Chilling should begin when tomato seedling reaches growth stage at left, where seed leaves (cotyledons) are fully expanded and first true leaves begin to emerge. Center pot shows plant after being exposed to 50 to 55° F. night temperatures for 2½ weeks. Pot at right shows stage of growth 2½ weeks later after 65 to 70° F. night temperatures. Note sturdiness of plant.



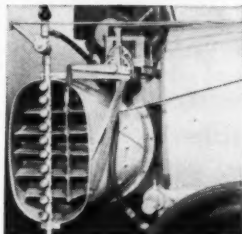
Chilled tomato plant (left) grown in coldframe, is blockier, has thicker stems, stronger side shoots, flowers closer to the ground, and after fewer number of leaves, produces more flowers in the first clusters than greenhouse-grown plant.

APRIL, 1956



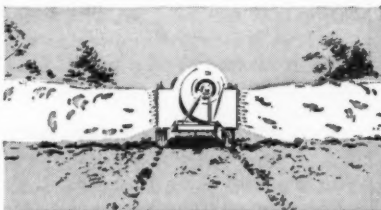
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# IS SOIL COMPACTION CUTTING YOUR YIELDS?

How to prevent or correct this condition is a major problem of today's vegetable grower

**VIRGIN** soil possesses a definite amount of solid material and open spaces in each cubic foot. Physically, soils are composed of three phases: solids, air or gases, and water.

When soils are brought under cultivation, the proportions of these three phases in a cubic foot of soil are changed. Occasionally the condition is improved, but more often a cultivated soil does not possess as good a structure as virgin land.

## Tillage Practices

Of course, soil type is also a factor, the heavier soils showing greater compaction. The heavier a soil, or the more clay it contains, the closer the farmer must watch his tillage practices. It is most important that soils be plowed or otherwise worked only when at the optimum soil moisture content.

A good rule of thumb to follow is this: work the soil when it will just crumble when squeezed gently in the hand. If it is moist and makes a ball, then it is too wet to work. If it is hard and will not crumble, then it is too dry.

If you violate this principle at plowing, or the first tillage of the season, you increase your problems for the remainder of the growing season in our temperate climate.

If improper tillage is practiced season after season, just to get the job done as soon as possible, the bad effects are multiplied many times. Excessive disking of a plowed soil, particularly if it was plowed when too wet, contributes to compaction. Continuous reworking of the soil during seedbed preparation and during

cultivation tends to sift the finer clay particles down deeper. Rains help carry them down, too.

By the end of the season a hard layer of clay may be found anywhere from 3 to 12 inches deep. You can call this a temporary hardpan. Its hardness will depend upon the type of soil and amount of clay in it, the amount of rainfall during the season, and the amount of heavy equipment running over the land. All these tend to compress the soil and reduce the amount of air and water space.

Many potato growers in Ohio and other states are finding that their yields go up on land that is plowed and planted with no working. Soils must be plowed at optimum moisture content. When so plowed, soils for any crop will require the least amount of working before planting.

Preparing a good seedbed is most important. Preparing a good rootbed is equally important, the potato growers are finding. Their seedbeds may not look so fine and smooth, but their rootbeds are composed of well-aggregated soil particles, not fine clay that compacts and suffocates tubers and roots.

## Crops and Rotations

In addition to the mechanical processes of tillage, a grower can affect his soil structure through the types of crops he grows and the rotations he follows. These include both vegetable crops and green manure crops.

Deep-rooted legumes, such as sweet clover and alfalfa, help to reconstruct soil aggregates, and often their roots will penetrate the hardpan formed from excessive tillage. Heavy grass



Paul J. Zwerman

A requirement for good crop production is a soil that permits good moisture penetration. Plots show how water fails to penetrate dense soil (left), readily penetrates fertile, porous soil (right).

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sods, such as rye, when plowed under replenish the soil with organic matter, one of the binding forces in soil aggregation. Whenever possible, one should select a vegetable crop that requires the least amount of soil preparation, cultivation, and spraying to follow one requiring intensive practices. In this way compaction can be reduced, since heavy equipment is a major offender.

#### Compaction Symptoms

One of the first symptoms of developing hardpans in the lower part of the plow layer is poor drainage. Certain spots in the field where clays are heavy and where heavy equipment has been run more constantly show up first. When fields are plowed, these areas contain more clods than the rest of the field. They are harder to plow.

One of the most reliable measurements of compaction is the use of "bulk density." In this method the weight of a known volume of soil is compared with the weight of an equal volume of water. A cubic foot of water weighs 62.4 pounds. So a cubic foot of soil of this weight would have a bulk density of 1.0. The greater the bulk density of a soil, the more compact it is and the less air and water space in it.

Heavily compacted hardpans and some subsoils will run as high in bulk density as 2.1. Percolation of water through such soils is very slow, often down to less than one-tenth of an inch per hour. Surface erosion, if sloping land, is increased. In dry seasons these soils show more drought than others because their water-holding capacity is less and infiltration is slower.

In evaluating such density tests a good general rule is this: If the bulk density of the plow sole just about equals that of the subsoil, you have a moderate compaction layer. If it is less, you have little or no compaction. If it is more, severe compaction has occurred, and corrective measures must be followed.

#### How To Avoid Soil Compaction

- 1) Plow land only at optimum moisture content; just when it begins to crumble in the hand. Never plow when wet.
- 2) Disk, harrow, and otherwise work plowed land as little as possible.
- 3) Keep row crop cultivation to a minimum.
- 4) Use as light equipment as possible when going over cultivated land. Heavy, rubber-tired tractors and spraying equipment add greatly to soil compaction. The fewer trips over a field the better.
- 5) Follow a suitable crop rotation. Grow as many soil-building crops as alfalfa, sweet clover, and rye in a rotation as possible. When possible, follow an intensively cultivated vegetable with one requiring less cultivation.
- 6) Use deep tillage tools, such as subsoilers and moles, to break up hardpans only when necessary. Their effects are temporary, usually lasting for only one season. They do not prevent the cause of hardpans. If used when soils are wet, they too can contribute to compaction. Best time to use them is in the fall when ground is dry.

APRIL, 1954

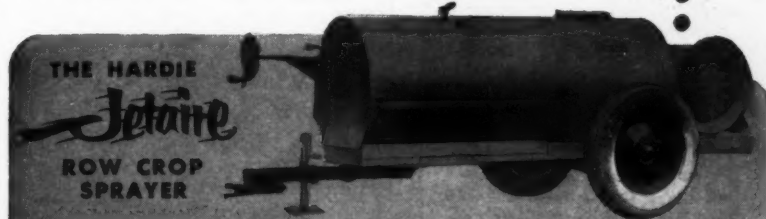


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## Junior Growers Turn Attention To 1956 Contest Projects, Prizes

NJVGA headquarters announces contest rules,  
complete prize list for year's activities

**F**OR the first time, fruits will be added to one of the major projects of the National Junior Vegetable Growers Association, the annual Production and Marketing contest.

The contest is open to those between the ages of 14 and 21 (who have completed at least one previous year of horticultural project work). It is divided into two sections: 1) for fresh market sale or home use, and 2) for sale to canning or processing plants.

Each section has subsections involving soil fumigation and quality and/or yield of comparative varieties. Participants may enter either the fresh market or the canning section and also the fumigation and variety subsections. Each section may include vegetables and/or small and tree fruits.

Awards for the Fresh Market and Canning Crops section will be identical on national, regional and state levels. Top national award is \$50.00 in cash to be used toward expenses in attending the annual NJVGA convention; gold wrist watch; maroon NJVGA jacket; gold NJVGA pin, and purple rosette ribbon.

Regional awards (four) are \$25.00 in cash to be used toward expenses in attending the annual NJVGA convention; gold wrist watch; maroon NJVGA jacket; gold-filled NJVGA pin, and blue rosette ribbon.

### State Winners

NJVGA encourages the recognition of participants in all of its projects on a state basis by local awards and publicity. In addition, the association will award silver NJVGA pins and blue ribbons to the top two state winners and bronze NJVGA pins and red ribbons to the third, fourth and fifth winners.

In the Soil Fumigation subsection the national, regional and state awards will be the same as for the Fresh Market or Canning Crops sections, except that no duplication of watches or pins will be made in the event that an individual wins more than one similar placement in other sections of the Production and Marketing contest. In these instances awards of equal value will be substituted.

The Variety subsection carries the following awards: top national award—\$25.00 seed certificate; maroon

NJVGA jacket; gold NJVGA pin, and purple rosette ribbon. Regional awards (four)—\$10.00 seed certificate; maroon NJVGA jacket, gold-filled NJVGA pin, and blue rosette ribbon. State awards—first and second place—silver pin and blue ribbon; third, fourth and fifth place—bronze pin and red ribbon.

A Grand Champion Award of \$100.00 will be bestowed upon the individual selected by the National Awards Committee on the basis of the most outstanding project report from all the sections of the contest, plus his or her character, citizenship and interest in horticultural work.

Certificates will also be presented on state and county levels for the greatest number of participants and the highest per cent of completions.

Registration cards may be obtained from your State NJVGA chairman or from NJVGA Headquarters, 103 French Hall, University of Massachusetts, Amherst, Mass.

### Demonstration Contest

The national Demonstration contest, also involving vegetable and fruit crops, will again be divided into the four sections of production, soil fertility and improvement, marketing and use. The two most worthy demonstrations in each division, in the preliminary contest, will compete in the finals for the national awards for first, second and third placement. Contestants between the ages of 14 and 21 may participate as individuals or as a team of two in a 15-minute original demonstration. No state may enter more than two demonstrations in each of the four divisions of the contest.

Awards in preliminaries will go to members of the top two teams in each section as follows: gold wrist watches; maroon NJVGA jackets; blue rosette ribbon to the winner in each section, and red rosette ribbon to the runner-up in each section. All other participants in the national contest will receive blue ribbons.

Finalist awards for first place are: gold pins and purple rosette ribbons; second and third places: gold-filled pins and purple rosette ribbons; fourth, fifth and sixth places: silver pins; seventh and eighth places: bronze pins.

Entries, after a series of elimination contests, must be registered at

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maroon NJVGA 1 bons. For prizes incl ets, gold-fi rosette ri tenth, mar NJVGA p bons; 11 t pins and b bronze NJ 41 through

A bi-month tion of ve tional org Vegetable motion wri University

APRIL, 1956

NJVGA Headquarters by December 1.

The oldest contest in the history of NJVGA is a training program covering the identification of important varieties of vegetables, diseases and insects, weeds, grade defects and nutrient deficiency symptoms.

The Snyder Trophy, a large oak and gold plaque, will be awarded to the team placing first in this contest. It must be won three times before it becomes the property of the school, club, or team. Each member of the winning team will receive a purple rosette ribbon.

Participants placing first, second or third will receive gold wrist watches,



Peter Youdell, 15-year-old Stockton, Calif., grower, receives congratulations for a 4-H tomato-growing project that placed first in his state NJVGA contest. A special ribbon and pin are presented to him by Ira I. Somers, of the National Canners Association, an NJVGA sponsor. In his first vegetable project Peter planted 20 acres of tomatoes, got yields of 15 tons of top-quality fruit per acre. This was slightly below the state average, but Peter ran into difficulties. The crop was originally intended for the green tomato market, which failed to develop a satisfactory price. Then he had labor difficulties which prevented a complete harvest. Sound familiar?

maroon NJVGA jackets, gold NJVGA pins, and blue rosette ribbons. Fourth- through sixth-place prizes include maroon NJVGA jackets, gold-filled NJVGA pins, and red rosette ribbons; seventh through tenth, maroon NJVGA jackets, silver NJVGA pins, and white rosette ribbons; 11 through 20, silver NJVGA pins and blue ribbons; 21 through 40, bronze NJVGA pins and red ribbons; 41 through 100, white ribbons.

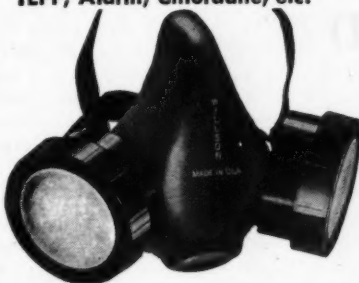


A bi-monthly page for the younger generation of vegetable growers and their national organization, the National Junior Vegetable Growers Association. For information write Grant B. Snyder, French Hall, University of Massachusetts, Amherst, Mass.

APRIL, 1956

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with toxic insecticides and fumigants such as Systox, Parathion, TEPP, Aldrin, Chlordane, etc.



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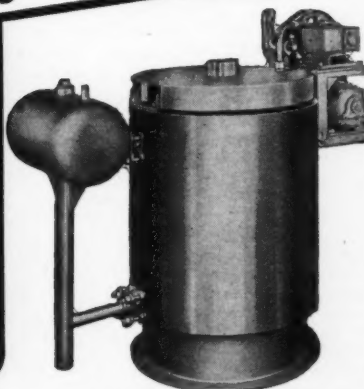
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## GOOD SEED

(Continued from page 14)

The company maintains two completely equipped modern seed-testing laboratories, one at Detroit and one at Mountain View, Calif. Here millions of seeds are tested annually to insure that they not only meet all government requirements, but comply with the exceptionally high standards which Ferry-Morse has set.

A sample of every lot of seed is sent to one of these two laboratories. There trained technicians make two kinds of tests: purity analysis and germination trials.

In purity analysis the seeds are shaken out on a lighted table or translucent plate, and examined under a strong magnifying glass. A physical count is made to determine the percentage of weed seeds, other crop

90 per cent. Upwards of 35,000 germination tests are conducted in the Ferry-Morse laboratories each year.

To double-check these results, Ferry-Morse also conducts greenhouse tests for germination. A specified number of seeds of the variety in question are planted in flats of sterile soil, covered with clean sand, and subjected to the proper conditions of light, temperature, and humidity in the company's extensive greenhouses at Oakview, near Rochester, Mich.

Greenhouse tests are likewise conducted for disease resistance in varieties. A single test for mosaic in peppers or wilt in peas may involve several hundred seedlings. Over 50,000 tomato seedlings were grown at Oakview during a single test for resistance to fusarium wilt.

### Field Trials

Laboratory and greenhouse tests, however, provide only a partial answer to the question of quality in seeds. Equally important is how a given lot of seed will perform under actual growing conditions.

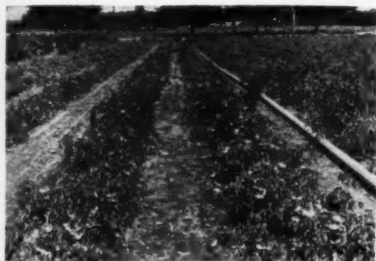
To find out, Ferry-Morse maintains trial grounds at Salinas, Calif.; Hazelton, Idaho; Rochester, Mich., and Belle Glade, Fla. More than 14,000 performance trials of vegetable and flower seeds are conducted at these trial grounds each year. Often several samples of the same lot of seed will be grown in widely separated areas in order to judge performance under different climatic and soil conditions.

Any of these four trial grounds is a fascinating spot to visit during the growing season. At Oakview, for example, more than 300 strains of tomatoes may be under testing at a single time. Some will be new cultures developed by Ferry-Morse plant breeders, that are being checked to determine their suitability for introduction. Others will be established varieties, on which the company's tomato experts keep an eagle eye to make certain they remain true to type in quality and performance. Also included are new strains and varieties introduced by other commercial seedsmen and various state and federal experiment stations.

In addition to its own performance trials, Ferry-Morse seeks the help of outside experts in judging its seeds. Samples of new and improved varieties are furnished to state and federal experiment stations for trial. A select list of canners, freezers, and commercial growers tests and evaluates new vegetable strains before their introduction.

Only when Ferry-Morse is sure that a new variety or strain is really worth introducing does it appear in their catalog.

THE END.



### IRRIGATION SAVES CROP

A small irrigation system saved this field of Fireball tomatoes for Rudolph Fenien, Fredonia, N.Y. Fenien planted Fireball for the early Buffalo market, but dry weather early last summer made it look as though he'd have to forfeit these high early prices. However, as soon as the dry weather started, he set up a small irrigation system and started applying an inch of water per application.

When this photo was taken July 12, he had applied 3 inches of water and was selling big, red tomatoes to the Buffalo market at 30 cents a pound. First picking was about June 27. A neighboring field of early tomatoes dried up before the first fruits were picked.

Fenien set the tomatoes in the field the last week in April and fertilized with 400 pounds per acre of 5-10-10 at planting, and side-dressed later with 100 pounds of ammonium nitrate. With adequate water the plants were able to utilize the fertilizer and produce a fine crop. He considers Fireball one of the highest yielding early varieties (65 days) he's ever grown.

seeds, and inert matter present in the sample. Special training and considerable experience are required before a seed analyst can qualify for this work.

### Germination Tests

In germination trials a sample of the seed is counted out onto moist blotting paper. Such a sample typically consists of 400 seeds. The sample is then placed on a tray in a special germinating cabinet where temperature and humidity are carefully controlled.

When germination is complete—which may take from three to 30 days depending on the variety—the analyst counts the number of normal seedlings that have sprouted. If 360 out of the 400 seeds have produced healthy, vigorous seedlings, the germination of that lot of seed is noted as

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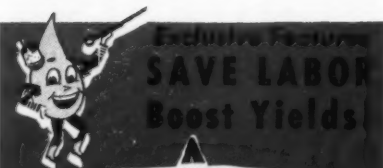
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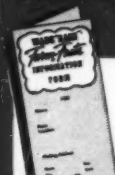
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## IRRIGATE FOR Frost CONTROL

Strawberry growers fight spring frosts with water

**M**ANY strawberry growers with irrigation equipment are finding that it is their best insurance against spring frost damage to blossoms. Many berry growers in Michigan claim that this "bonus" use of their irrigation systems saved their crop in the May freeze of 1955.

Local weather station records in southwestern Michigan show that in 19 out of the past 23 years, from May 1 through 25, freezing temperatures were reported. Frosts ranged from 1 to 14 nights during this strawberry bloom period, with only four years being free from bloom frosts.

The big advantage of using irrigation over other methods of frost control is its low cost. A grower has the equipment for dry weather, so using it for frost prevention adds to its efficiency.

The cost of operation is generally less than for heaters or wind machines for the same acreage. But most important, watering has proved one of the most satisfactory ways to prevent frost damage to blossoms, especially when temperatures drop to the low 20's and there is some wind.

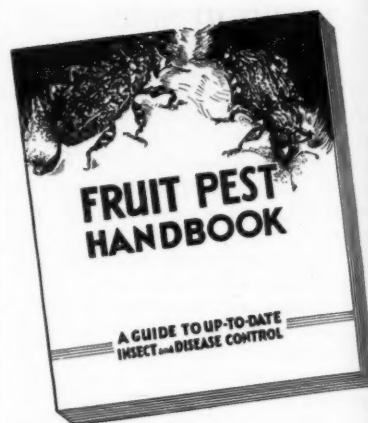
### Set Up System Beforehand

The irrigation system should be set up at least a day in advance of its anticipated use, tested, and made ready to go at a moment's notice. Laterals can be spaced farther apart, smaller sprinklers employed and operated at higher pressure than for regular irrigation.

Use just enough water to wet the foliage well, not to soak the ground. At best it will take 1/8 to 1/4 inch of water per hour per acre. You want to make the watering time as short as possible to conserve water. You usually have to sprinkle from one to eight hours a night.

Michigan growers found that by plugging the sprinkler side and using only the hammer side of the sprinkler, you can save water. When you do this, you increase pump pressure up to 70 pounds at the sprinklers and space laterals 70 to 90 feet apart. The higher pressure results in more fogging of the water which drifts over areas not actually covered by the sprinkler arc.

A thermometer in the low area of the berry field will give you the tem-



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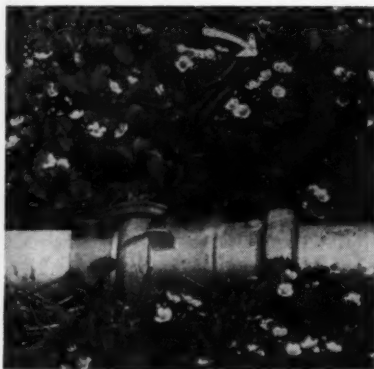
\*A highly s  
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Dept. A, Rte.

APRIL, 1956

perature as it drops. Attach a bell in the house to a thermo-switch in the field set to ring at a given temperature. The bell ringing will notify you to start the system.\*

The temperature at which irrigation is generally started for frost prevention is 34° F. This can vary somewhat according to the air movement, cloudiness, and stage of bloom. Some growers stay in the field during the night and check for first formation of ice crystals on leaves, then turn the water on. They may drive their car to the low spot in the field and use it as an indicator, starting to water when frost begins to form on the fenders. Others use a small pan of water set in the lowest spot, and when ice crystals form on the water, they turn on the sprinkling system.

Continuous watering during the below-freezing period is essential for full protection of the blossoms. A



Sprinkler (Skinner) used to prevent frost damage by Henry Leimbach, Vermillion, Ohio. Note large ball (arrow) in right side of sprinkler, so water comes through hammer side. This saves water.

few growers have tried intermittent watering, but were successful only until temperatures dropped to the low 20's. Watering is stopped after temperatures rise above freezing and the ice has melted from the plants. Plants may be iced a quarter of an inch.

Watering has successfully pulled strawberry blossoms through temperatures as low as 20° F., or even lower for brief periods.

Watering for frost prevention may affect the available nutrient supply in the soil, especially nitrogen. If considerable water has been applied, a light application of nitrogen, either through the irrigation system or in dry form, should be applied soon after the frost period is past. Water leaches out the nitrogen and low soil temperatures prevent nitrifying bacteria activity. Additional nitrogen will speed up plant growth.—E. S. Banta.

\*A highly accurate yet inexpensive frost alarm system is manufactured by Art de Desrochers, Dept. A, Rte. 3, Wenatchee, Wash.

APRIL, 1956

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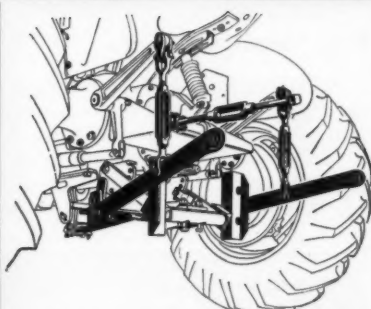
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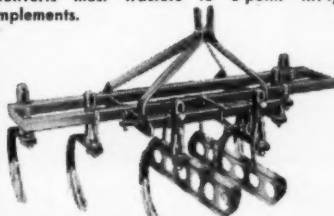
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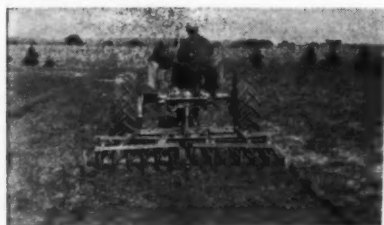
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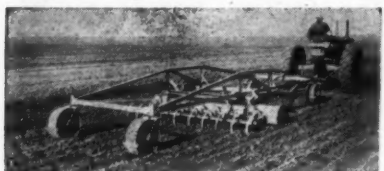
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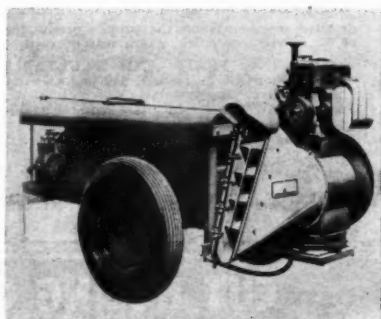


With seeding time just around the corner, it's time we thought of field preparation and methods to lower costs. Out in the West, growers have been using for several years a landplaning machine which levels and cultivates the soil in one operation. The machine has paid for itself in one season for many growers and should be investigated by you. There are 25 different models so that each grower can get a machine ideally adapted to his operation. The Multi-Purpose model pictured above is ruggedly constructed and has markedly increased production. Why not write Dick Hornbostel, Marvin Landplane Co., P. O. Box 209, Woodland, Calif., for details.

## Convert Economically

In Michigan, growers are talking about a new air spraying attachment

for high pressure row-crop sprayers. The new attachment covers a 30- to 40-foot swath and makes your old sprayer automatically operated by the tractor driver. The new sprayer attachment has a 21-inch axial flow fan that produces a high-volume, low-velocity air stream. Power is supplied by a Wisconsin 12 h.p. engine, and complete 180 degree rotation of the air unit allows the profit-minded growers to take full advantage of wind direction. The new sprayer can easily be converted to an orchard



sprayer by simply closing the boom valve and adjusting the internal vanes. For full details on the new attachment, write Art Gerard, John Bean Division, Lansing 4, Mich.

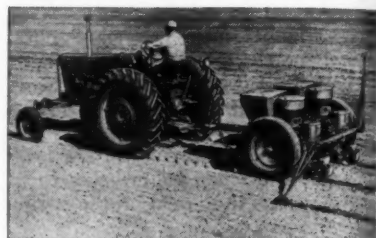
## For Small Growers

At last a small, easy-to-use, effective hose sprayer is available for the small grower. The unit operates with 20-pound pressure or more, and insecticides are perfectly mixed and kept in solution. It is ideal for disinfecting



vegetable buildings. Made of all brass fittings, the unit will last for years and is low in price. Full details can be had by merely writing Gilmour Manufacturing Co., Somerset, Pa.

## Profit Planter



Much has been written about the need for accurate planters and how such equipment increases production profits. A new precision planter has just been introduced by Oliver which does the seeding job in the best possible fashion. Accurate placement of fertilizer in two bands is provided. The first is designed for starter fertilizer and the second for full growth. The new planter will be available this season at all Oliver dealers. So that you can be fully informed, Bob Dinnensen, Oliver Corp., 400 W. Madison St., Chicago, Ill., will gladly send you all of the facts. Write him today.

## Gold Cup



Lester Dammann, a vegetable grower like ourselves, has just received a gold trophy for the starring role he and his family played in a new vegetable film entitled, "More From Every Acre." The theme of the new film is plant breeding, seed processing and production as the answer to higher profits. The whole Dammann family plays a leading role in the new 23-minute film, and you can have a copy, free of charge, for your association or group meeting. The film was produced for Northrup, King, and you can get all the details by writing Ken Erickson, Northrup, King and Co., Minneapolis 13, Minn.

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\$5,199.90 WAS PAID TO JOHN BETTS, in few weeks. Grow mushrooms. Cellar, shed. Spare, full time, year round. We pay \$3.50 lb. Free Book. MUSHROOMS, Dept. 127, 2954 Admiral Way, Seattle, Wash.

### FOR SALE—EQUIPMENT AND SUPPLIES

FOR SALE: HUDSON POWER SPRAYER, like new. Complete with boom and spray gun. Also 8,000 tomato stakes, A. C. SIMPKINS, Wayne, Ohio, 1 1/4 mi. E. Jerry City. Telephone Cygnet 9411.

SACRIFICE—BUFFALO TURBINE TRAILER mounted concentrate sprayer duster. T. MAUTER, 1914 Richards, Toledo, Ohio.

FOR SALE—ASPARAGUS TRIMMER and conveyor, vegetable tyers. MANHATTAN GARDENS, Manhattan, Illinois.

### FOR SALE—REAL ESTATE

IF YOU ARE AN EXPERIENCED VEGETABLE grower and want a greater return for your efforts, in both income and healthy living, there is a sunny future for you in South Florida. We have available some of the finest farmland in the east coast, west coast or Everglades sections. You, like many successful growers, might find the soils and climate of South Florida to your liking. Wire or write HAROLD RABIN CO., INC., produce brokers and shippers, P. O. Box 7, Belle Glade, Florida.

### MEDICAL

LATEST METHODS TREATING PILES, Fistula, Colon-Stomach disorders. Write for free book. McCLEARY CLINIC AND HOSPITAL, 2345 Elms Blvd., Excelsior Springs, Mo.

### MISCELLANEOUS

PEAFOWL, PHEASANTS, GUINEAS, BANTAMS, Waterfowl, thirty varieties Pigeons. JOHN HASS, Bettendorf, Iowa.

### SALESMEN WANTED

FARMERS, DEALERS, AGENTS — MAKE extra money. Demonstrate, take orders, new proven nationally advertised Gro-Green Liquid Fertilizer and Nitrogen Nutrients. Full-part time. Samples and demonstrating outfit FREE. CAMP-BELL CO., Rochelle 91, Illinois.

WANTED—HARDWARE SALESMEN IN Ohio and Western Pennsylvania who are calling on hardware stores and garden supply stores to sell a non-competing line on a straight commission. An excellent way to add to your income. All inquiries will be kept confidential. Write BOX 104, Hardware Retailer, Indianapolis 4, Indiana.

### VEGETABLE PLANTS

SWEET POTATO PLANTS. GUARANTEED. Nancy Halls, Portoricans. 500, \$1.50; 1,000, \$2.50; 5,000, \$11.75. "Bunch" Portoricans. 200, \$1.25; 500, \$2.25; 1,000, \$4.00. Planting guide free. SUNSHINE PLANT CO., Gleason, Tenn.

## OPPORTUNITY ADS

BUY, SELL AND TRADE—Readers and business firms will get top advertising value at low cost from AMERICAN VEGETABLE GROWER "Opportunity Ads." These classified ads are widely read, widely responded to by AMERICAN VEGETABLE GROWER's high-income readers throughout America. Our classified advertising department will run your ad under any heading and will guarantee correct insertion.

RATES—For one insertion, 25c per word. For two insertions, 20c per word. Four insertions, 15c per word. Count each initial or whole number as one word. CASH WITH ORDER.

AMERICAN VEGETABLE GROWER reserves the right to reject or alter any copy which does not merit its standards. Ads will be inserted in first available issues unless preferred month is specified by advertiser. Closing date is first of month preceding publication.

APRIL, 1956

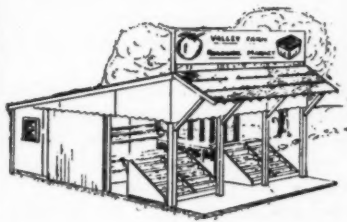
## BOOK REVIEW

**Profitable Roadside Marketing** by Profs. R. B. Donaldson and W. F. Johnstone, of agricultural economics extension at Pennsylvania State University. \$2.00. College Science Publishers.

Here at last is a practical handbook for the successful operation of a roadside market. This is the first book ever written on this subject, and is the result of many years' study of "on-the-farm" marketing in all parts of the country by two experts in the field.

This book covers every phase of roadside marketing—planning, building roadside stands, handling and

This roadside market, conveniently located so the motorist can readily stop, will make it easy for you to take care of customers quickly. Movable racks make it possible to maintain an attractive stand



in accordance with supply and demand, and the overhanging roof affords protection for the customer. Working drawings for this easy-to-build stand are available for \$1.50 from AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

storing produce, packaging, pricing, advertising, and many other topics. It is written in simple, nontechnical language, and is illustrated with a multitude of good photographs, plans, charts, and drawings.

## ROOT ROT CONTROL IN HORSERADISH

HAVING trouble with root rot in horseradish? Thoroughly examine your sets for discolorations and wounds before planting. Swelling, discoloration, and cracking may also indicate white rust fungus infection.

To make this examination most effective, wash and dry the sets beforehand. Inspect very carefully the ends of the roots and the sides, since many of the destructive organisms enter through wounds in the sides. Discard all diseased sets. Plant only strong, healthy roots.

A dip treatment in 1:1000 corrosive sublimate for 15 minutes before planting is sometimes recommended for controlling root rots, but this treatment often injures the sets and causes a reduction in yield.—N. F. Oebker, Veg. Crops Dept., U. of Illinois.

## FERTO-POTS Millions Used Plant Eats Pot

### BE A TWO TIMER



Grow two or three crops per year off the same ground by having FERTO-POTTED plants well started and ready to set out in the field as soon as the first crop is finished. Also sell FERTO-POTTED plants to gardeners and growers.

	Total wt.	Total wt.
2" pot 100	\$2.50 5 lb.	250 \$4.50 11 lb.
2 1/2" pot 100	2.75 8 lb.	250 5.00 18 lb.
3" pot 100	3.25 11 lb.	250 5.75 25 lb.

### ALLEN COMPANY

Since 1915

Pittsboro, N.J.

Shipped Parcel Post or Express. Please Send Postage.

## VEGETABLE PRODUCTION AND MARKETING

By Paul Work and John Carew

General chapters in the new second edition of this practical book cover culture, harvesting, storage and marketing. Individual chapters cover the major crops of potatoes, tomatoes, sweet corn, root crops, peas and beans, vine crops, onions, cabbage and related crops, celery, lettuce, spinach, asparagus and rhubarb.

Sent postpaid on receipt of \$4.72. AMERICAN VEGETABLE GROWER Willoughby, Ohio



## This Man HAS Irrigation When He Wants It!

He Guarantees Himself

ASSURED CROPS  
BETTER QUALITY  
BIGGER PROFITS!

You Can Too!

**Insist on HALE**

## Irrigation Pumping UNITS

Write today to Dept. AVG for Full Information. Prompt Answer Guaranteed.

Name .....

Address .....

Water Source.....No. Acres.....

Irrigation Division

**HALE** FIRE PUMP CO.  
CONSHOHOCKEN, PA.



## Our Disappearing Farmlands

ONE of the most poignant news stories ever written by any of our "State News" correspondents came from Andrew Duncan, extension vegetable crops specialist in Maryland. Duncan told about a bumper crop of first-rate spinach being grown by George Stratman, one of the state's leading growers.

His story concluded: "The field from which Stratman cut his biggest spinach crop in 15 years has produced two crops of spinach a year for the past 40 years. This may be that old field's last crop . . . surveyor's stakes are being planted now . . . a factory is to be built there next year."

Now we have a letter from Lee Towson, Jr., a past president of the Vegetable Growers Association of America, and manager, Field and Contract Department, of big (50,000 acres), progressive Seabrook Farms in New Jersey.

Writes Towson, "There are six acres of land in this country which are not used for agricultural purposes to every one that is so used. You may remember 25 years ago the great cry about the washing away of our best land through improper soil conservation practice. A lot of good work has been done in this, and many of the acres punished by bad practices have been reclaimed. *Any good farm land, however, taken for housing development is lost to agriculture forever.*"

Towson sent along a speech made before the Jersey City Kiwanis Club on October 27, 1955 by Belford L. Seabrook, vice-president of Seabrook Farms.

Quite naturally Mr. Seabrook's special interest is centered in the disappearing farmlands of his own state. New Jersey now holds an enviable position in the nation's vegetable picture. Based on dollar value, it produces 5 per cent of the nation's fresh and processed fruits and vegetables. Gross farm income per acre is startlingly high, as the following figures show:

New Jersey .....	\$208.00
California .....	77.00
Pennsylvania .....	60.00
New York .....	58.00
United States average.....	29.00

Seabrook cited an example from his own company to illustrate New Jersey's favorable position. In 1955 Seabrook Farms purchased several million pounds of strawberries on the West Coast at a cost of approximately

\$2 million. The freight and storage on this strawberry pack came to \$215,000.

"If this crop could have been produced in New Jersey, this extra money for freight and storage could easily have been paid to New Jersey farmers without any extra cost to the consumer," commented Seabrook. "This amount of strawberries only represents produce from 600 acres of land, so it could easily be accomplished in New Jersey."

Here is what Seabrook suggests:

1. Reappraise the agricultural potential in each municipality.
2. Make a land use study of the capability of the land.
3. Draw up a master plan on which the best use of the land will be evident. (For example, some barren, rocky, rough terrain which would never be good for agriculture or industry might be ideal for housing, with parks and woodlands in the rougher places.)

Class I soils would be used solely for agricultural purposes under this plan—and zoning would enforce it.

How might this work in practice? Santa Clara County, California, is the largest canning and dried fruit packing center in the world. Soil capability maps of California reveal that almost in every case where Class I soils occur, a growing urban center is spreading out from the center of the area.

These towns originally were located as service centers for agricultural communities. (Napa, Lodi, Fresno,

Modesto, Stockton, Sacramento, Woodland, and Chico are examples.) With increasing population pressure, however, all of these towns are spreading out over their most fertile acres, destroying the very asset that brought them into being.

Why, asks Seabrook? Only 10 per cent of the land in California is suited to agriculture. Why not distribute the population over the other 90 per cent?

What can you, as a grower, do about this problem? In April, 1954, the owners of 744 acres of land in pear orchards near Agnew, Calif., petitioned to have their land zoned for exclusive agricultural use. By asking for "A" zoning, these growers hoped to forestall the urban uses of the land which had already destroyed so many of the valuable food producing acres in the Santa Clara Valley.

A new zoning ordinance, pioneered by the Planning Commission and Board of Supervisors of Santa Clara County, was enacted as a result of the growers' petition. It prevents industry and subdivisions in any area to which "A" zoning has been applied, thus protecting the farmer against rising taxation.

"Besides the economic advantages to the farmer, zoning promises far-reaching benefits to all the people," Seabrook pointed out. "It is also a significant step toward soil conservation."

"If industry and home builders could be encouraged to look at all the other available land first before they take over flat, fertile fields, it would be a real advancement. This is a challenge which will only be met when public opinion demands it. Levitt bragged that a Long Island potato patch was a city within a year. In Pennsylvania Levitt converted a spinach field into Levittown in a few months. To me this is like bragging about how we stole the West from the Indians."

We are glad to hear a renowned vegetable grower like Belford Seabrook say openly and strongly what we suspect every grower—large or small—has said every time he sees a vegetable field planted to surveyor's stakes.

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- Soil Insecticides—A Boon to Growers
- Okra—the Gumbo Plant

AMERICAN VEGETABLE GROWER

### VEGETABLE CONVENTION



"Gotta hand it to that gal—she sure keeps her chins up."



Soil  
without  
humus  
→



←  
Soil  
with  
humus

HOW PLOW DOWN WITH CYANAMID HELPS YOU ...

## Enrich Your Soil with Humus

Plenty of good, rich humus in your soil will increase crop yields and improve soil condition in many ways. Humus is the backbone of all productive soils, and no soil is fit for agricultural use unless it contains a good supply. But humus is destructible, and must be renewed each year. Otherwise yields are reduced.

### Nature needs help

You have a natural source of humus in corn and grain stubble, other crop refuse and cover crops. But this woody organic matter will not rot fast enough *by itself*. As a matter of fact, if you plow it down *alone* it will steal nitrogen from your crop.

### Cyanamid makes **MORE** humus, **FASTER**

Cyanamid contains just the *right* balanced diet of nitrogen and calcium for the soil bacteria that turn plowed-down organic matter into humus. Instead of rotting slowly, Cyanamid-treated crop refuse or cover crops rot *fast* into a storehouse for plant food—promoting faster plant growth and rewarding you with increased yields.

### The right kind of nitrogen plus calcium

Cyanamid's 21% nitrogen is leach resistant. It breaks down gradually, and is not readily leached by heavy rains before its job is done. It gets crops off to a good start and *stays with them* until harvest. For most crops, on most soils, plow down with Cyanamid actually makes side- or top-dressing of the following crop *unnecessary*! And the calcium in Cyanamid is very important. Cyanamid's right combination of nitrogen and calcium provides soil bacteria with an ideal food supply, and the calcium also neutralizes soil acidity.

### Advantage of granular form

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### Cyanamid proved best plow down fertilizer

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### FREE BOOKLET

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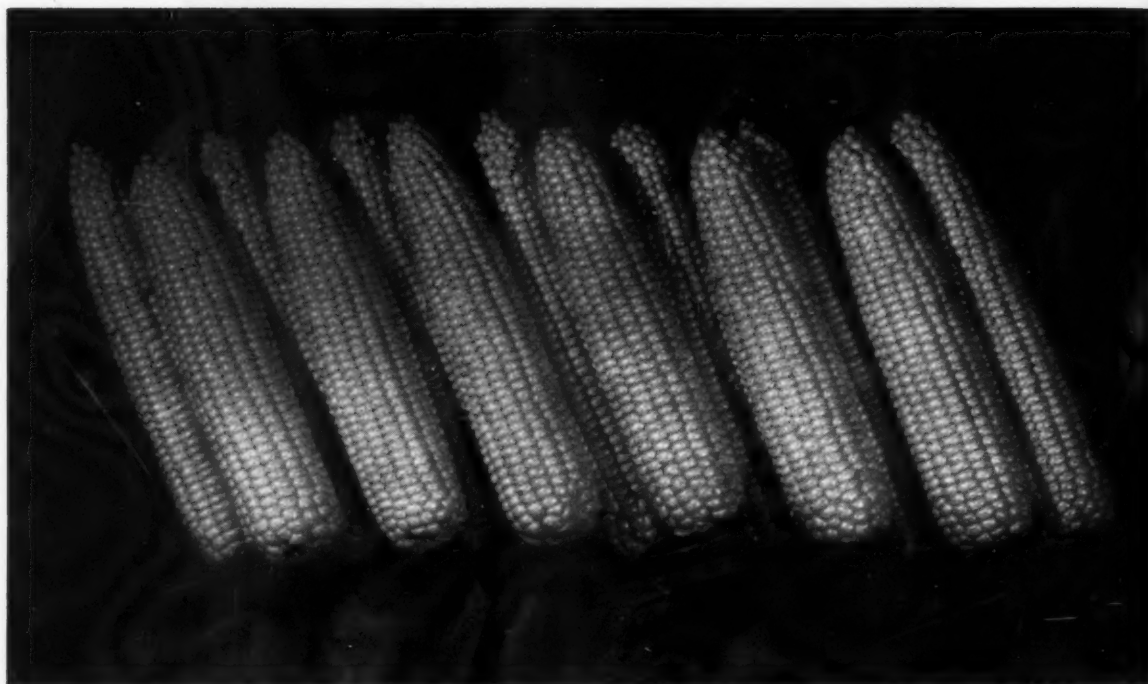
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## **YIELDS WELL**

Even under adverse conditions of heat and drought this wilt- and earworm-resistant Asgrow hybrid makes good growth and good crops.

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Good size and shape, light color, uniform tip-fill give Calumet the attractive freshness that critical buyers look — and pay — for.



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